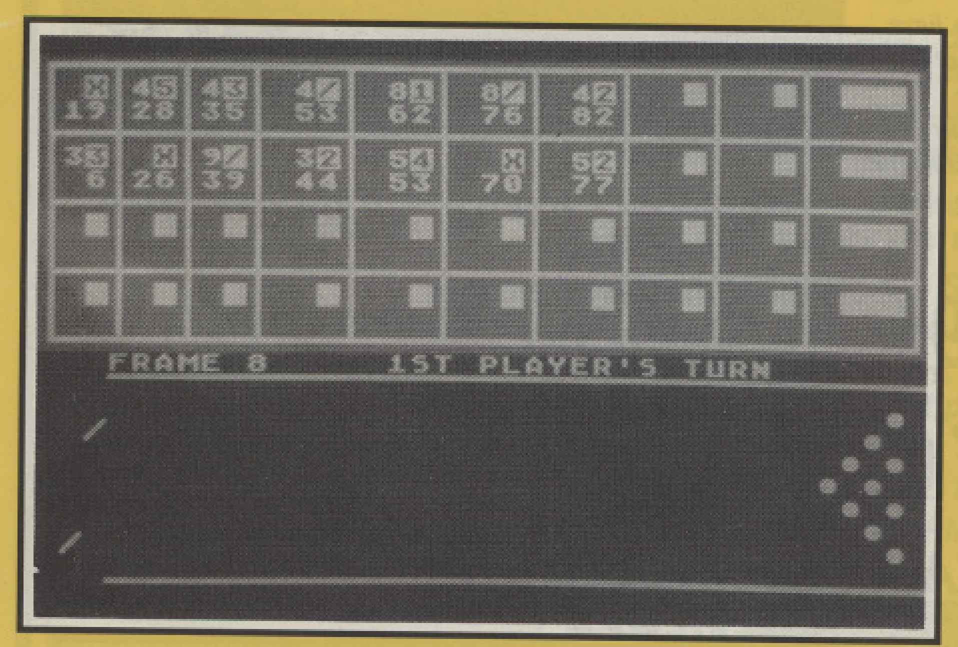
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Issue 60 February/March £2.50



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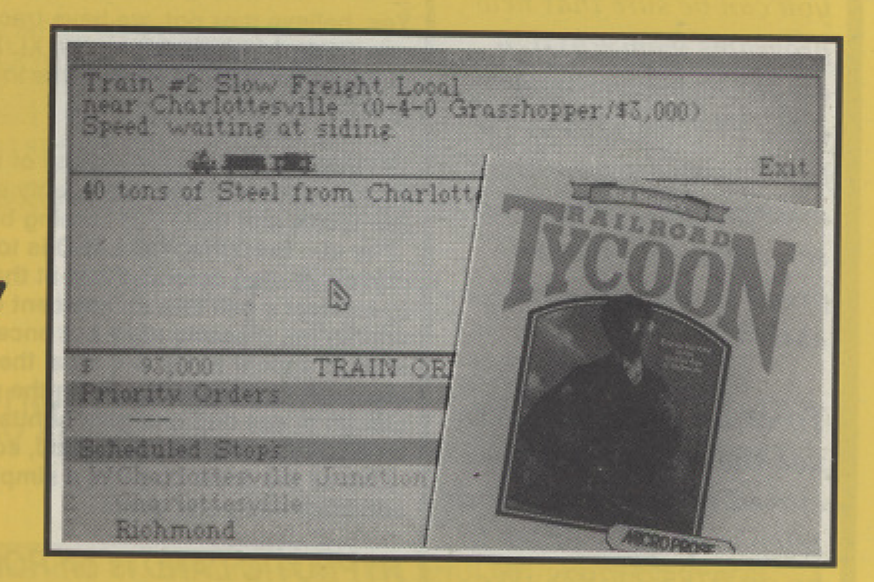
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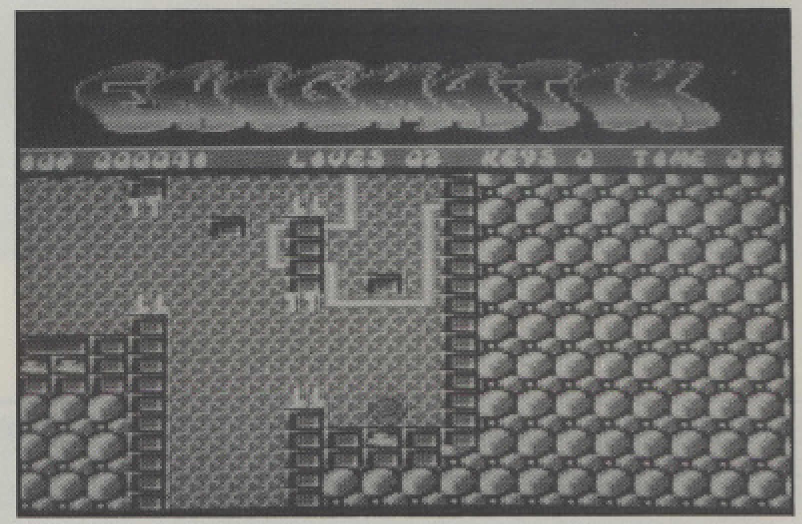
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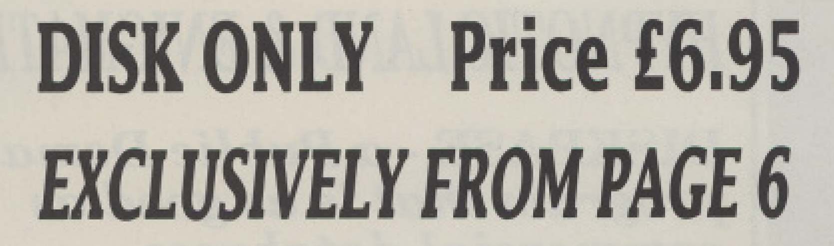
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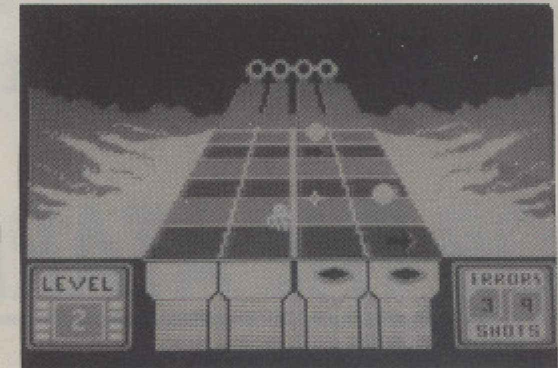
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PAGE 6 is proud to be able to bring you these two superb new releases for the XL/XE. There are still a number of programs being released for the XL/XE but we have always been extremely selective so you can be sure that new programs from PAGE 6 are of the highest standard. ENIGMATIX is the first major program from a British programmer for some time and we are proud to make it available.

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A BRAND NEW XL/XE ROM CARTRIDGE! EXCLUSIVE TO PAGE 6!

HYPNOTIC LAND



Yes, believe it or not, we have tracked down a brand new ROM CARTRIDGE for the XL/XE from Lindasoft in Italy who have produced this in conjunction with Atari Italy.

HYPNOTIC LAND is a version of the massive ST hit KLAX - a highly addictive, highly entertaining game that will challenge you to complete the first few levels and have you coming back for more - again and again!

The aim in HYPNOTIC LAND is to redirect mineral elements in the form of coloured balls into the corresponding coloured cup at the end of a ramp. To do this you must place arrows on the ramp to redirect a ball into an adjacent column. Remember to only put green balls into the green cup and so on. It seems easy but once you have mastered the first level, some despicable monsters start to appear to try and steal the balls. You can shoot them with the joystick but don't forget you also have to keep one eye on the ramp! Sometimes special shining extra-balls will appear which can go in any cup and give bonus points.

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'The magazine for the Dedicated Atari User'

CONTENTS

Issue 60 - February/March 1993



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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles, all payments being made at the end of the second month shown on the cover of the issue concerned.

The next issue of NEW ATARI USER will be on sale 25th March
Editorial copy date is 15th February

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PAGE 6 PUBLISHING's
NEW ATARI USER

Editorial

Issue 60
February/March 1993
'The Magazine for the Dedicated Atari User'
ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham saw in the New Year by completing this issue after having a couple of days off at Christmas and would like to thank everyone who continued their support during a hectic year

Sandy spent more time than any of us down the office where the coffee freezes after a few minutes and she still managed to get everything done

Paulette is still as cheerful as ever and doesn't give us much trouble, she even persuaded Jason to come in and help us out with the last issue

Jason said he would give Paulette a hard time if he didn't get a mention in this issue, so thanks Jason for helping us out for the sort of wages we can afford!

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

John S Davison	**John Davison jr**
John Sweeney	**Paul Rixon**
Damon Howarth	**Ian Finlayson**
Dion Guy	**The Tipster**

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their enthusiasm with other Atari users.

On to the music! Most of the Christmas list from the last issue is still awaited with only Robin Williamson, The Incredible String Band and Neil Young obtained. The ISB live CD is interesting being a BBC broadcast that I recorded off the radio on an old reel to reel many years ago but really only for aficionados! Robin Williamson is Robin Williamson, you either love him or loath him. The one that stayed in the deck for hour upon hour is Neil Young's Harvest Moon, an excellent set of gentler material. Neil Young has this thing against digital recorded CD's and in a recent interview said that nobody ever plays tracks twenty times in a row any more because with a CD you can hear everything the first time. Well, Neil, it's nothing to do with the recording medium, it's the quality of the music that counts and I can assure you that Harvest Moon and particularly the final track Natural Beauty has been played at least twenty times so far and it looks as if it will be played many more times in the coming months. Talking of Beauty we went to see Beauty and The Beast on Christmas Eve. Magic, pure magic! Let's hope that 1993 brings fewer new CD's or, rather, more money!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! With the exception of the final output on a Linotron and the use of an in-house repro camera for the photos and listings everything is done on the ST. Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, an Atari Laser Printer, Citizen 124D printer, Philips CM8833 monitor, 130XE, XF551 disk drive, 810 disk drive, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, TariTalk, Turbo Basic and various custom written programs on the XL/XE. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARITALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages as Postscript files is sent to a typesetting bureau to be output on a Linotron and, hey presto, finished pages are sent back exactly as you see them. It really does work! All that is left is to drop in the listings and photos.

Well, it's not quite as easy as that but you get the idea!

TEN YEARS!

Dear Les,

Congratulations on Page 6's tenth anniversary. To survive this long in the computer magazine world is no mean feat, especially in today's cutthroat environment. To do it for what is seen by many in the industry as a computer with minority following is nothing short of miraculous!

I'd like to thank you for not only providing a wide range of interesting and informative articles in each issue, but also for encouraging everyone to get involved in writing for the magazine. I've certainly enjoyed contributing over the years, and so has my older son, John junior. In fact, it was writing for Page 6 that launched him into a career as a professional writer. And now younger son Peter, an Atari addict and Page 6 fan virtually since birth(!), has also begun submitting articles. I hope lots of other readers continue to become similarly motivated, as it's this diversity of input that provides the lifeblood of the magazine.

Best wishes for the future.

John S Davison

Thanks John, and thank you to all the others who sent cards or messages for our 'tenth anniversary'. Ten years is a remarkable time when you look back but it would not have been possible without the support of our contributors, especially during the hard times and especially those who have written regularly for years on end. This issue is dedicated to them with my sincere thanks for their support.

MORE SUPPORT!

Robert Stuart, of EXCEL fame, has also celebrated our tenth anniversary with a specially created **PAGE 6 TENTH ANNIVERSARY DEMO DISK** which you will find advertised in this issue. As well as showing what the Atari can do (and what you could achieve) this celebration disk will provide some much needed income to start us on the next ten years. I hope that you will buy a copy, it's a good demo as well as a unique memento.

Les Ellingham

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THE PAGE 6

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A UNIQUE MEMENTO OF 10 YEARS ATARI SUPPORT

Mailbag

Allan J Palmer sits in the hot seat at the sorting office awaiting your letters on all things Atari - get writing!

Hi, I'm Allan Palmer and, as mentioned last issue, I've volunteered to take on the post of Mailbag Editor for 'New Atari User'. To start things off, I have a mixed batch of recent letters and I've worked my way through them.

I hope you find the first column useful but please write in with questions and comments on things Atari. Let's have lots of feedback - I'd like this column to be as interactive as possible. There is quite a lot of work in getting a column like this together so perhaps I can make a few requests. If writing with pen, please write legibly (especially your name and address), if using a word processor, a decent ribbon would be appreciated to reduce the eyestrain and don't forget to acknowledge your sources if you find some interesting information or answers.

That's that over so ... on with the letters.

A DEDICATION

Many people have contributed to making the Atari Classic the very best machine of all and so I'd like to add a dedication to this first column of mine:

"To Bill Wilkinson - who created DOS 2.0 and 2.5, who was involved in the development of Atari BASIC, who devised the original TYPO program in ANTIC, and whose 'Insight: Atari' column in COMPUTE! magazine was always a great source of 8-bit information - thanks for all the insight you made available to Atarians"

A CORRECTION TO THE CONNECTION ...

Steve Attwood from Warley, West Midlands writes:

"Thanks for publishing my article on the connection of a SCART monitor and a SM125 mono monitor via one lead to a ST (issue 58, page 56). However, I did notice one small mistake in Figure 2 accompanying the article. Where the 9-pin plug links the SCART connector, pin 2 (9-pin end) seems not to be linked to anything - it should be linked to pin 4 inside the SCART connector. You should let all the wires come from the 9-pin end into the SCART case and then attach any resistors as necessary, then solder those ends onto the SCART pin, with any extra links joining pin to pin."

Thanks for putting us on the right lines, Steve.

DAISY DOT and TEXTPRO

D R Bowles of Gosport, Hants has a couple of questions about these two PD utilities.

"With Daisy Dot I am having problems producing a document which contains control codes for the printer, e.g. underlining. I am printing the document to disk using TextPro. However, the desired result of underlining is not being achieved. Is Daisy Dot capable of producing underlined text and if so, how?"

Daisy Dot is an excellent print processor created by Roy Goldman (2240 S. Jasmine Street, Denver, CO 80222, USA). The original PD version (Daisy Dot) and its successor (Daisy Dot II) are both in the Page 6 Public Domain Library. Which version of Daisy Dot are you using? The original Daisy Dot does not handle control codes and the like, so underlining is not possible with this version. Daisy Dot II, however, does have the capability to perform underlining (and many other features) through the use of its own control codes which you must include within your word processor document (instead of the word processor codes for these facilities) before printing the file to disk (use Control-P in TextPro). In your TextPro document you must use '\u' before and after the text you want underlined in order to toggle underlining on and off accordingly. I have successfully used Daisy Dot versions for some time now when I need to produce superb quality documents from word processor files created by both TextPro and PaperClip. I hope this helps you - if not, please drop me a line with more details, perhaps including a listing of your document as printed from both TextPro and Daisy Dot ...

"Can TextPro produce a preview facility whereby the finished document can be viewed in 80 column mode, as per the ability of the word processor in Mini Office II?"

Sorry, as far as I know, as in most word processors for the Atari Classic, a preview of all 80 columns on the standard 40 column E: screen is not implemented. You can preview your document by printing to the E: device and setting the width appropriately (refer to section 7 of the TextPro documentation). The 80 column view can be difficult to read on domestic televisions, and is intended for systems with monitor screens. However, if anyone knows otherwise, please let us all know!

LOCATION 53775 ...

In issue 58's Mailbag, Chris Roberts asked for clarification of the use of the above memory location. Raphael Espino of Peterborough, Cambs and "Ye Olde Atari 8-bit Owner" of Bristol wrote with information. Raphael writes:

"The truth about SKSTAT (location 53775) is that the O.S. is correct and the sources are wrong. Bit 5 of this location is in fact the serial bus overrun and bit 6 the keyboard overrun (which is not used by the O.S.). The reason that the sources are all wrong is that the mistake was also made on page III.18 of the Hardware Manual from the Technical reference Notes, Atari's official guide to the 8-bit, and the other books obviously used this manual as a source, thereby duplicating the error."

Our anonymous Atarian from Bristol expands on this:

"The Atari Hardware Manual states that 8 bits of serial data including the start and stop bits are put into SERIN (53773, the 8-bit serial input register), one bit at a time until a full byte is held. the processor is then interrupted to indicate that there is an input data byte to be read from SERIN, ready to be processed. The processor must respond to this interrupt and read SERIN before the next data byte can be received, otherwise an input data "over-run" will occur. This, of course, is indicated by bit 5

of SKSTAT (53775, the serial port status register) and indicates that input data has been lost, which occurs if bit 5 of IRQST (53774, the interrupt request status register) has not been reset to "true" before the next input is complete.
There are also a few other registers involved in the above process- CHKSUM (49, checksum) gives a single byte sum with carry to the least significant bit of the number of bytes transmitted. a checksum sent flag would then be set at CHKSNT (59, a value of 255 at this location would mean that it has been sent). CHKSUM also uses SERIN and BUFRFL (56, a value of 255 here would indicate a full buffer) for a comparison of values between the two locations to find the bytes transmitted.
Also, in the Technical Reference Notes' Hardware Manual page II.26 where serial input is mentioned, SERIN is called an 8-bit parallel input register when SERIN stands for serial input (not parallel)"

Thanks guys. I hope this clarifies the situation for Chris.

LA PLUME DE LUMIERE?..

Christian Delelis writes from Annezin in France:
"I'm very happy with New Atari User because in France there is nothing for Atari 8-bit for a long, long time. I want to say to your readers that they are lucky because I bought 4 issues and 2 issue disks from Page 6 - in the U.K. a reader would pay £7, but for me it costs £7 plus £3 postage plus £1.17 for customs duty! The only good thing in France is blank disks that seem to be cheaper - 10 DS/DD for about £4.
I have a little problem. I found a light pen and I don't know how to use it. I hope you can help me."

Yes, light pens seem to be available now. They were promoted by Atari U.S. in the early days, but seem to have had limited distribution. One story that went the rounds was that Atari were worried about people jabbing the pens at their screens too hard and smashing the glass ...
Anyway, turning to the always useful 'Mapping the Atari' from COMPUTE! by Ian Chadwick gives us a staring point -

location	
564	LPENH Light pen horizontal value
565	LPENV Light pen vertical value
632	STICK0 Value of joystick port 1

The light pen horizontal and vertical positions are not the same as the normal row and column screen positions. The vertical positions are numbered from 16 at the top to 111 at the bottom. Horizontal positions start from 67 at the left, and when the horizontal position reaches 255, it resets to zero and begins counting again towards the right hand side, giving a total of 228 horizontal positions. Both LPENH and LPENV are modified when the light pen trigger is pressed (STICK0 = 15). Ian Chadwick notes that because of the number of readable positions and their small size, certain leeway must be given if using light pen values in a program.
The closest example of programming using these locations that I could find was in Atari User Vol. 3/No 10 (Feb. 88) where Andre Willey provided a BASIC listing for a game using the XE Light Gun - which is essentially just another form of Light Pen...
If I had either of these accessories, I would experiment to see what sort of BASIC code would be needed to utilise them. However, for the meantime, use STICK0 to detect if the trigger is pushed, then LPENH and LPENV to get the Light Pen co-ordinates - then convert these values into screen column (X) and row (Y) values appropriate to the Graphics Mode you are in, in order to use the LOCATE X,Y,SCRNVAL statement to return the numeric code (0-255) of the character beneath that point. If you have success Christian, why not submit an article/demonstration program to New Atari User?

MORE GAMES! ....

Daniel Baverstock from Brighton, Sussex is a games enthusiast:
"I am writing to you concerning some of the companies that turn out 8-bit games, (including one of the best, Zeppelin, who produce some of the most amazing games I've ever seen). With many games that have been produced for the C64, (including Platoon, Mission wolf, The Untouchables, etc.), and with many games produced to the least of the Atari Classic's graphic and gameplay capabilities, I really believe games such as those for the C64 could be produced for the Atari XL/XE machines. When I see games such as Hardball, International Karate, Zybex, and Draconus, I feel proud to own an Atari 8-bit.
One of the many games that I'd like to see on the Atari Classic is Mission Wolf where a gun sight is controlled - this is used to shoot enemy soldiers, vehicles, aircraft, etc. among many different landscapes. Various weapons are available (e.g. machine guns, rocket launchers, knives, grenades, etc.) and ammo and health are collected
This is one of the many games that is quite possible on the Atari Classic. Many people's attitude to the XL/XE machines is that graphics such as those from Miner 2049er, or the odd beep, is about as good as the Atari Classic will go, when many new companies have proved this wrong by far. If there is a company that will try and produce this type of game, I am positive that all 8-bit owners will buy them.
This letter is also a big thank you to all companies that support the Atari Classic."

Well, Daniel, thanks very much for your views. The good news is that a clone of Mission Wolf has been done as Operation Blood - programmed in Poland. Page 6 and Micro-Discount may have copies and this issue of New Atari User should contain a review of the game. Let's hope that the revival of interest in the Classic machines continues (notably in Europe) and that more games demonstrating the Classic's capabilities appear. Remember - support the people who produce these games and don't pirate copies!

TAPE TROUBLES AND KEYING KONFUSION ...

From P Nevin, Bootle, Merseyside:
"I have a 65XE and XC12 data recorder and thoroughly enjoy typing in games and utilities printed in New Atari User. I have a problem when typing in games which create an autoboot tape. Having typed in the listing and checking it with Typo 3, an autoboot tape is created with no problem; but when I try to load the autoboot tape by switching off the computer, etc., the saved data simply runs through and then the computer simply exits to BASIC. I am using good quality tapes and CSAVE and CLOAD work without problem. Can you help?"

Well, I'm afraid my 410 recorder hasn't seen much use over the last few years, so I'm a bit rusty on things to do with cassettes. However, I note you say "...the data runs through and then the computer simply exits to BASIC." Does the autoboot tape you're loading require BASIC? Are you holding down the OPTION key, as well as the START key when you're autobooting? Is your OPTION key working? (Check it with the keyboard self-test) Anyone got any ideas?

Mr. Nevin is also trying to type in the KRUNCH program form issue 56:
"Unfortunately, try as I might, when typing in this program I cannot get the Typo 3 codes to match those printed in the magazine. I do have copies of early issues of Page 6 which show all of the control codes, but these have not helped. Can someone tell me what key-presses are needed to obtain the control codes, or can someone let me have a copy of the program on tape? Any expense would of course be reimbursed."

Using the control-character and inverse combinations in listings is always a cause for miskeying it seems. I'm afraid we just haven't got the space to go through and list out all the key presses for such lines. However, perhaps a few things to watch out for may help - don't confuse the obli-

que (/) and back-slash (\) with the control-F and control-G characters; watch out for lower case letters which are very close to their upper case partners (e.g. 's' and 'p'); also check for characters like inverse-control-delete and inverse-control-insert; control-B, control-N and inverse-control-M may also be tricky to spot in a listing. Why not practice typing some of these combinations out and comparing them to the printed listings to aid recognition? Has anyone got any useful tips for typing in these sorts of program lines?

A NEW ATARI USER ...

12-year old Gethin Williams wants some help in learning to program:

"I am really interested in Atari 8-bit programming, but all I know is what is on the 'Invitation to Programming 1' cassette, and that is only a fraction of the BASIC language. I have been looking for a book that will teach me all I need to know about programming so that I can write even a basic sort of game. Please could you send a catalogue of books if possible?"

Well, what do the old-timers recommend for learning about programming the Atari Classic? I learnt from Albrecht, Finkel and Brown's 'Atari BASIC - a self-teaching guide', supplemented by 'Your Atari Computer' by Poole, McNiff and Cook. But what books are still available now? Check out the Page 6 Accessory Shop leaflet. If you have any suggestions to aid Gethin, or any books which he could acquire, why not contact him at: "Troed-y-Rhiw", Blackmill, Bridgend, Mid-Glamorgan, CF35 6DR, Wales

MEM.SAV ...

H.S. Wood of Bradford, West Yorks comments on the MEM.SAV file:

"It has been often written that if one is using DOS 3, then one should immediately change to DOS 2.5. It has not been my experience to find DOS 2.5 so much better but that is probably because I do most of my programming in machine code (no, not Assembler).

Currently, I am writing up the notes for a joystick port printer interface, which has been in use by me since 1987, and I have again come up against the problems caused by DOS 2.5. I had become rather complacent about the said interface which in my case works perfectly with DOS 2.5 and DOS 3, but in trying to ensure in the notes that no problems will be found by somebody who might construct a similar unit, it was realised that my success is due to the use of MEM.SAV.

The standard MEM.SAV is painfully slow, so I use one which was written by Simon Robins and published in the June 1987 issue of Atari User. I also use RAMdisk with my 130XE, and it is probably worth mentioning that the printer routines remain intact without MEM.SAV when using DOS 3. These findings made me wonder how an 800XL user, without RAMdisk, copes with the very slow System MEM.SAV and this in turn brought me to the point of this letter. There are many articles in old magazines which are well worth printing again. As in the case of this MEM.SAV routine, some would be of great value to many users of Atari 8-bit computers."

Well thanks for your thoughts, H.S. Would anyone like to comment on their experiences with MEM.SAV? And what about this joystick port printer interface - is this the makings of an article submission to New Atari User? Regarding reprinting old magazine articles, I'll have to leave the editor to consider this - I don't know if copyright problems are involved at all. Additionally, I think it would be more beneficial if people took fresh looks at old subjects. I am sure that there are still new aspects to be written about subjects previously covered. Experience gained since original publication may shed new light on techniques and the like. Are there any particular areas that you think should be revisited?

DEAD DISK DRIVE ...

From Herbert Spencer of Maidstone, Kent:

"My Atari 810 disk drive seems to have given up working for me so I wonder if any reader can advise me what is wrong with it or better still how I can repair it. The local repair shops seem only able to repair 16-bit equipment and have no facilities to test an 810 disk drive even if they could repair it.

Until recently, it worked well as my second drive but then the computer would not recognise it. I reconnected it as drive one, having changed the drive code number back, but it still did not work. My other disk drive works well so there is nothing wrong with the computer or cable. When switched on the drive whirrs and the drive light illuminates, the motor then stops and does not respond to the computer's instructions. Has anyone any advice?"

Well, Herbert, my personal advice, having experienced similar problems with my 810 18 months or so ago, is to get in touch with Derek Fern of Micro-Discount (021-353-5730). Derek diagnosed and cured the problem successfully. Any comments from anyone else?



Mailbag extra ....

Having compiled my first MailBag column, I popped the disk in the post and relaxed ... and a couple of days later a large brown envelope arrived with some more interesting letters which had not been included in previous issues, together with the first trickle of letters following the publication of issue 59. Well, I booted up PaperClip and leapt in again ...

Rather than create an issue of NAU that is all MailBag, I will deal with the older correspondence in detail in my next column (issue 61), together with as much new mail as possible. In the meantime, I will just say "thanks" to Den Baverstock, M J O'Meara, Paul Harley, H S Wood, Nigel Ludlow, J J Baldwin, Rob Dyer, Robert Francis, M A Fenwick, Martin Beswick, Arthur L Morris, Carmel Andrews, Syd Beauchamp, Freddy van Heijning, J E Robinson, Andy Barr, Tom Ralphs and Daniel Baverstock for their past correspondence, and I hope to include your comments and questions in the next issue.

For the moment, I'd like to take a look at the first letters that arrived since Les' announcement of the "new" MailBag...

ATARI 8-BIT ENTHUSIASM LIVES! ...

Rob Dyer from Gravesend, Kent writes:

"Great to hear you volunteered to become editor of MailBag, Allan. I've often thought this is one area that has yet to be truly exploited to it's full potential. Fingers crossed the letters flood in!"

It's only a trickle so far - but I hope the drought will end soon ...

Rob applauds the decision to drop the full-colour glossy cover and is pleased with the latest issue ...

"The contents of issue 59 were among the best for a while. A good mix of features - no one kind of feature dominating (as can sometimes happen). I liked the Tipster's book review, the new 8-bit game reviews, the Scottish profile, Superscript update along with type-ins and all this backed up with news of new, quality software from your advertisers! Enthusiasm, if not money, certainly seems to have reached all areas of the Atari 8-bit community."

What do other readers feel about the mix of features? In the past Les has run special issues on Adventures, Printers, Graphics, etc. - should there be more issues like that (if so, what subjects?) or do you prefer a general mix of features?

Rob also notes that he had made enquiries of Ke-Soft but had not yet placed an order *"...not because I feared sending money abroad for goods ..., but simply because of the recession I have to count every penny at the moment. It is a frustrating situation when one's enthusiasm is high but financial status so low. I can only say as a long time supporter of the 8-bit Atari that I WILL spend the money when I have it. I only hope the various companies can wait that long and don't take this lack of response as an absence of interest."*

Some interesting and important points there. I am not going to delve into business economics and the like but just note the vicious circle syndrome where companies are trying to make sales to increase their cash flow in order to expand and generate more product, but their consumers have not got the money to buy large quantities of the product, so the companies don't make the sales ...

ISLAND THOUGHTS ...

Manxman Mark Parsons from Sulby (on the Isle on Man!) is also pleased with the "new look" magazine, but with regard to the cover writes:

"The only problem with the new cover is the flimsiness around the staples. I tend to read though each issue several times to digest the wealth of information in them (especially this Assembly Language Tutorial - brilliant!), and I have found that I must handle issue 59 very, very carefully for fear of a lost cover."

This echoes a comment that I've made to Les about the cover. I actually thought the cover stock felt thinner than the interior pages! Hopefully, Les can run to something a bit stiffer (if you'll pardon the expression) for future issues.

"How many people get the mag just for the ST section, and who would mind if this disappeared? Maybe then the deprived Atari Classic (great name - who coined it?) owners can have much more to themselves. ST users have got other magazines, but we haven't."

I'll leave Les to consider if NAU should drop ST coverage ...

Mark continues by mentioning that in search of new *"mega-games"* to play he went and bought a *"Commodoorstop"* (referring to the shape?) The game are *"brill"*, but at £25 a time, he's beginning to see some good points about his Atari Classic system. Not only is the software cheaper, but *".. Turbo-BASIC appears to be a far more powerful language than any of the BASICs on the A*i*a, and now I repeatedly return to my Atari to play around (unsuccessfully) with TB."*

Mark concludes with these comments: *"My advice to anyone who is thinking of buying a 16-bit system is to think of all the people you would let down if you stopped subscribing, and the 8-bit lifeline slipped closer to death. I know this would sit very heavily on my conscience, so I am going to continue subscribing to NAU, and I shall keep using my Atari Classic regardless of developments in the 16 and 32 bit worlds. Long live the Atari Classic!"*

I'm sure I speak for us all when I say thanks for your support and I hope many others share your view.

800XL REPAIR ...

From Chesterfield, Derbyshire, John Bunting welcomes me to the "hot seat". He likes *"...the idea of making greater use of the MailBag feature and would like to see it utilising more space if this can be made available. after all one of the most popular sections of any hobbyist magazine is the letters page and an expanded version in NAU should prove very popular.*

Programming questions and answers are an obvious choice of subject and I would like to see more hints and tips on hardware particularly regarding fault finding and repairs to our equipment. Some of it is now registering a high mileage and with no new replacements available, keeping the old items on the road has a high priority.

In an effort to start the ball rolling, here are details of a repair I carried out on my 800XL."

At this point I have to interject and say that Page 6 and New Atari User cannot take responsibility for attempts at hardware repairs and modifications carried out by its readers. If in doubt - don't! However, for those with the knowledge/experience, here is John's advice.

"When about three years old my 800XL developed a fault rendering it unusable. After some shopping around (most repairers wanted about £30 to look at it regardless of a successful repair) I got it fixed for £20 after a free estimate. I was told one of the integrated circuits (or chips) had failed. Then last year the same fault recurred.

By this time my son was using the computer as I had upgraded to a 130XE. The symptoms were that when switched on it went straight into the self-test mode and I observed that RAM test showed faulty so I removed the casing and looked intelligently(??) about and saw that one of the RAM chips was different to the others - hopefully the replacement fitted during the previous repair. The RAM chips are the 8 in a line down the left side of the printed circuit board. I also noted that they were fitted in holders making them easy to interchange - no desoldering required. So, armed with the reference numbers of the chips I went to a local electronics shop (not so pricey as the multiple stores) and was fitted up with a replacement for £1.95. As I didn't know which one (if any) of the eight was faulty I was advised to also purchase a removing tool. Although only similar to a large pair of tweezers with inwardly turned ends and costing a quid more than the chip, the advice was sound as it made light work of removing the chips without damage. A further piece of useful advice was that the chips can be damaged by handling (static in the body) but that it would probably be sufficient to 'earth' my fingers on to the work surface each time before handling.

On returning home I took out chip number one, carefully fitted the new one and connected the board up to the power supply and TV and switched on. No difference. I then replaced No 2 with the one I had just removed and BINGO on connecting up was rewarded with a blue screen and the 'READY' indication. Incidently there was no need to rebuild the computer to test as no keyboard input was required.

Obviously I was lucky as I had experienced the same symptoms previously and there was an indication of what had been done then. But as it happened to me twice it must also have happened to others and I hope the detail is of help to someone. A further stroke of luck - apparently not all models have the chips fitted in holders and desoldering without experience and a desoldering tool is not for the faint hearted.

As an afterthought to the repair it should be possible to get an indication of which RAM chip is at fault by the position of failure on the screen during the self-test.

Perhaps other readers would like to contribute their hardware cures."

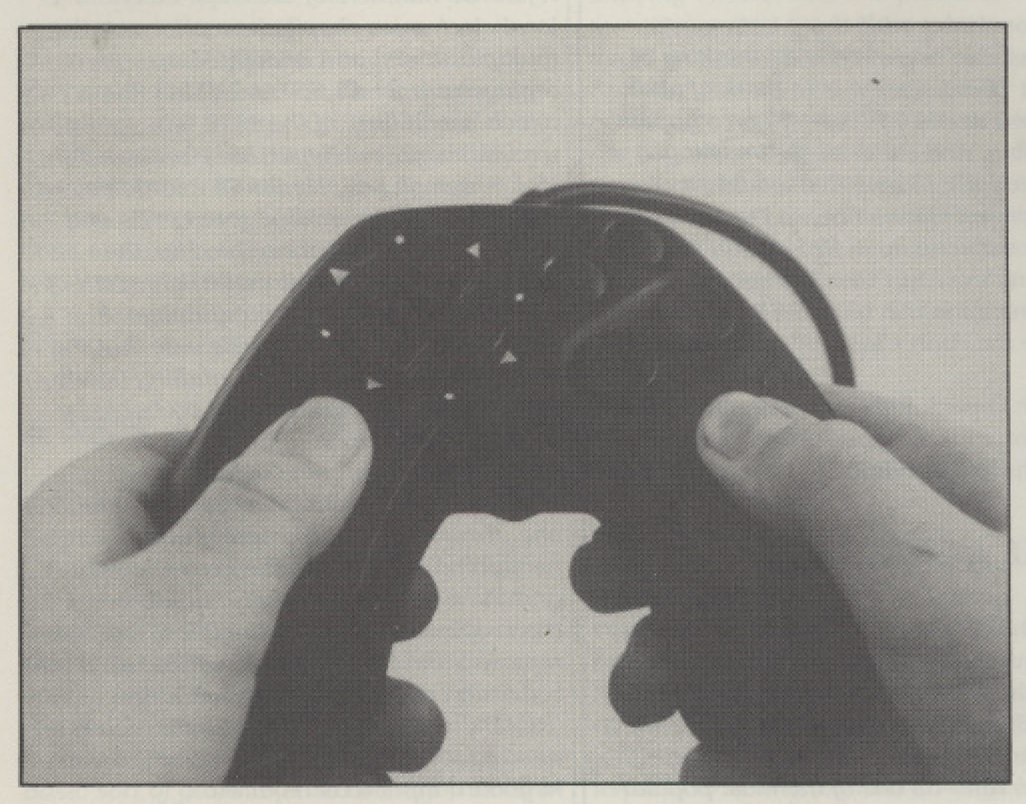
Whew, luckily John supplied his repair hints on disk so my fingers have been saved some typing.

NOW IT'S UP TO YOU! ...

Well, how's that for a start! I trust the trickle of correspondence for MailBag will turn into a torrent and we see lots of interesting comment and questions (and answers) in future issues. Don't be afraid to share your Atari Classic knowledge with others. If you want to keep the Classic alive, then be part of the team and exchange ideas and information.

Write to MAILBAG at
Page 6 Publishing,
P.O. Box 54, Stafford,
ST16 1DR

Please mark your letter with 'MAILBAG' clearly at the top so it doesn't get lost



GIMME NO STICK!

says Pete Davison

The Cheetah Bollistick is a new type of controller for the ST and 8-bit machines which looks similar to the "joypad" controllers on some popular games consoles. The unit's shape reminds me of a pair of bike handlebars. This makes it very comfortable to hold, but does mean it really needs two hands to operate, one holding each "handlebar". The controls include an eight-way rocker pad operated by your left thumb for directional control, and two fire buttons operated by your right thumb. There's also an autofire switch located on the side of the unit between the handlebars, where it can't dig into your hand while you're holding the controller.

I tried the controller on five types of games - platform, racing, beat 'em up, flight simulation, and shoot 'em up - with two games in each category.

Platform games were represented by Shadow of the Beast and Another World - two well known platform challenges. The unit handled admirably, being very responsive and making playing these games almost a joy. However, it did work better with 'Beast', allowing me to get quite a long way into the game without trouble. In Another World jumps need to be very accurate and the Bollistick didn't quite make the grade. My only slight complaint is that occasionally your left thumb can slip on the pad, accidentally triggering unwanted jumps.

Next I tested the two superb racing games Microprose Grand Prix and Continental Circus. The Bollistick wasn't very good on these. In fact it was almost useless, as pushing up on the joypad to accelerate while pressing sideways to steer is not the easiest feat to perform. It may be better on a game like Lotus Turbo Challenge where the fire button is used as the accelerator, but on these two games I felt it wasn't really suitable.

For flight simulators I chose F-15 II and Flight Simulator 2. I set F-15 II to the easiest level so I could just dive in and start flying, and found the Bollistick worked excellently. I found it less suited to the precise control required for Flight Simulator II though. Nevertheless it still handled with accuracy, while remaining quite responsive. Overall, I thought it to be quite good with flight sims.

The penultimate category is beat 'em ups, using Barbarian II and Double Dragon II as the test programs. Barbarian II handles similarly to Shadow of the Beast only a bit more responsively. I had the same problem with Double Dragon II as with the platform games - moving up when not needed - but only occasionally. In general I found the Bollistick worked well with these beat 'em ups.

The final set of games includes the immortal shoot 'em ups Blood Money and Anarchy. With Blood Money the unit handled magnificently, with superb accuracy. The fire button stood up to the punishment as well. Anarchy, the Defender clone, didn't handle as well because of the rapid direction changes needed. Overall I'd say Scramble type games such as Blood Money handle very well, while Defender type games such as Anarchy are a bit difficult to control with the joypad.

For completeness I also tested the Bollistick using Spy vs Spy II and Draconus on the 8-bit machine. These are two of my favourite 8-bit games and I was interested to see how they fared with the joypad. Spy vs Spy II handled well except for one problem area. Normally, on an ordinary joystick you'd waggle it frantically to escape from the quicksand, but this is nearly impossible with a joypad. Major control problems were more frequent in Draconus. Many a time my thumb slipped on the pad and set off an unwanted chain of events, usually with fatal results.

In summary, I was quite impressed by the Bollistick, even though it does cause a few problems with certain types of games. At £9.99 it represents good value for money, and is certainly very comfortable to use, but try it out with your favourite games before buying, as it may not suit everyone.

Product: THE BOLLISTICK
Manufacturer: Cheetah
Price: £9.99
Reviewed by Peter Davison

NEW MAGAZINES!

Well, what is the world coming to? As we complete ten years of supporting the Atari, it seems that there is a resurgence of interest world wide in the Atari Classic with magazines and newsletters springing up all over the place!

ATARI CLASSICS

Many of you will know that some dedicated Atari fans over in the States have been campaigning for several months to get enough support to justify the launch of a new magazine dedicated to the 8-bit Atari and, happily, they got the response they desired and were able to persuade a publisher that a new Atari magazine could be viable.

The first issue of Atari Classics came out in December and was mailed free of charge to all those who pledged their support for the idea. In a very brave move this issue was mailed without pre-payment to hundreds of Atari Users who were invited to subscribe. This 'Premier Issue' would be the first issue of your subscription if you took up the offer, otherwise you got the issue free. A sort of magazine shareware scheme!

The first issue is American A4 in size comprising of 32 pages including the cover in black and white throughout (no colour cover) but the content is more important at this stage than the presentation. This first issue seems to be very much a 'feeling the way' issue with new columns starting and articles of what could be termed 'minority' interest such as those on Transkey and the XEP 80. Perhaps there is more support for these products in the US than over here.

What is encouraging is the number of advertisements with ten different advertisers in this first issue. Advertising support will be vital for the survival of Atari Classics and will surely be of interest to readers desperately seeking support for their machines. Let's hope that this is a good omen and that Atari Classics will herald a resurgence of Atari support throughout the world.

Atari Classics is published bi-monthly and you can subscribe for one year at a cost of $38 (Air Mail to UK/Europe) payable by International Money Order, Visa or Mastercard. Write to Circulation Editor, Atari Classics, 179 Sproul Road/Rt. 352, Frazer, PA 19355-1958, USA. Money orders should be payable to Atari Classics.

FROM SPENDER COUNTRY

Also received is a Preview Edition of a new newsletter put together by David Ewens, John Matthewson and Max Gerum of the Tyne & Wear Atari User Group (TWAUG). This is an A5 newsletter with 24 pages and a double sided disk. This preview edition has reviews of the Daisy Dot User's Guide, an article on the 1020 Plotter, a machine code article reprinted from Monitor as well as the instructions for three games that are on the disk, along with a number of other articles.

Some pages, such as the Letters Page and Sales and Wants, contain only notices asking for your involvement and this is where the survival of such newsletters is determined. This first issue is a commendable effort but it is hard to maintain the effort and quality without knowing that people are interested. If you are interested, get in touch with TWAUG and let them know.

No information was available at the time of writing regarding costs but drop a line to David Ewens at TWAUG, P.O. Box 8, Wallsend, Tyne & Wear, NE28 6DQ and ask for more details. Enclose a stamp or stamped addressed envelope as these guys are doing it for the love of it and the costs soon mount up.

VIVE ATARI!



Much more surprising than Atari Classics is STAK ATARI a cracking little magazine published in Chile of all places! Issue 5 was sent to us with a very nice letter from the editor and the publisher explaining that the magazine started life as the idea of a small group of enthusiasts and has grown to a 40 page magazine on sale on the newstands of Santiago!

The size is slightly smaller than A4 but those 40 pages are packed out with interesting reviews, articles and programs for both the XL/XE and the ST with a bias towards the former. There are 8-bit programs to type in, including programs to modify Blinky's Scary School and Zybex, a nice map of Chimera and lots of other stuff on the XL/XE. Altogether an excellent coverage with only one drawback - it's all in Spanish!

If the magazine were in English I would recommend that you subscribe without hesitation but I am tempted to suggest that you subscribe anyway, or at least send for details. If you can read Spanish, you should not waste a further minute, subscribe!

Either way, the publishers will be happy to send you more details if you drop them a postcard to Revista STAK, Casilla 51552 STGO 1, Correo Central, Santiago de Chile, CHILE. Why not send them a picture postcard anyway just to show that the Atari community worldwide sends its regards to those still supporting the Atari Classic?

MEANWHILE IN IRELAND ...

Yet another newsletter landed in our post box recently, this time from Robert Paden in Northern Ireland who has put together Issue 1 of 'Irish Atari User'.

This one is just 12 single sided A4 pages stapled together, very much in the fashion of club newsletters, but put together by someone who obviously cares a great deal about the Atari and wants to share that enthusiasm. There are a few reviews, an in-depth look at a Hi-Fi hook up from an early Page 6 issue and a few hints and tips but Robert is really looking for some contributions and says that he won't turn anyone down!

Robert will be charging £1 for Issue 2 of Irish Atari User (probably just enough to cover the photocopying and postage) and if you want to show your support you could give it a try. Write to Robert Paden, 54 Ardmillan Crescent, Scrabo Estate, Newtownards, Co. Down. N. Ireland BT23 4PW.

PIRATES BEWARE!

Those who pirate software have never been able to see beyond the ends of their fingers and, surely, cannot realise that pirating what little new software is available nowadays could easily spell the end of all future support for the Atari Classic.

Derek Fern of Micro Discount has recently introduced two new games that would not otherwise have ever seen the light of day and is, rightly, dismayed to find that they are being pirated. In fact he is more than dismayed as his comments will show.

"Over the last few days, I have received information regarding pirate copies of my new software, in particular THE LAST GUARDIAN. This game was reviewed and released in the last edition of New Atari User and it has been on the market for just 3 weeks.

It has taken me over two months work to locate, obtain the rights to produce, develop the artwork for, and finally produce this game. It also involves a cash investment of at least £500 for each title produced. That is why I get extremely angry and frustrated when I hear that The Last Guardian is being pirated and distributed by an Atari User based in Bolton.

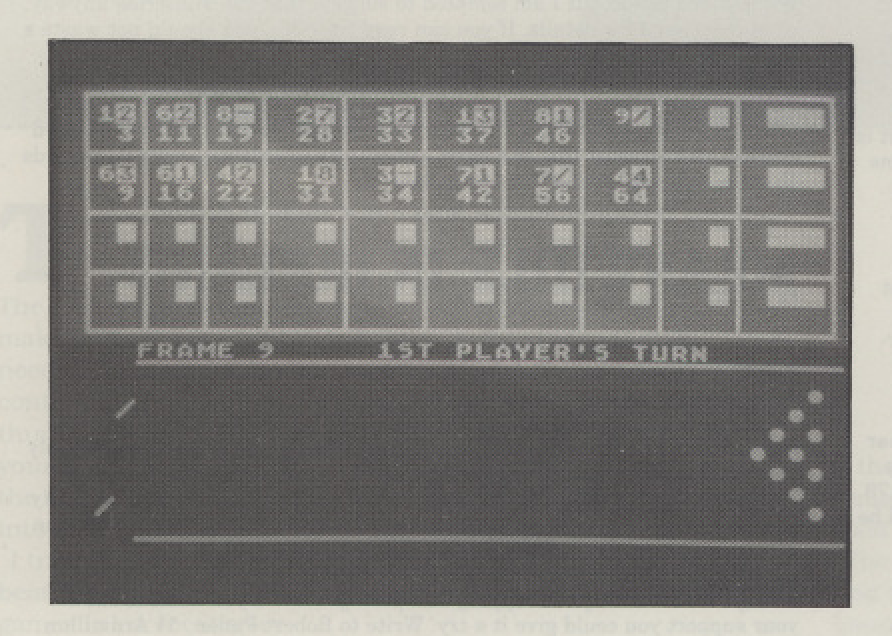
Be warned it is not a game, it is illegal to copy, own and distribute pirated software. You risk having your equipment confiscated and face up to a £5,000 fine.

Every Atari user I speak with complains of the total lack of support they receive from Atari and other software companies, I now understand why they withdrew their support! I still have 30 brand new titles to release but if this pirating situation continues I will simply adopt the same attitude as taken by Atari, close down and leave you to find your own software. Unfortunately this action also affects the non-pirating Atari users but I cannot simply sit back and let this situation develop.

I will be notifying FAST of the existence of this particular individual. This kind of user I can do without and so can other suppliers who go to great lengths to support the 8-bit machines.

Derek Fern"

TEN PIN BOWLING



With the ten pin bowling lanes getting quite expensive now what better than to play a few games at home on your Atari. This ten pin bowling simulation is simple yet highly entertaining and can be played by up to four players.

Play itself is simple and, just like in the modern alleys, all of the scoring is done automatically for you. Enter the player's names and off you go. Control is entirely by the fire button on the joystick, just press the button to release the ball and, when you judge the time to be right, press again to curve the ball up to the pins. Simple as that but good fun, especially for younger members of the family who will master the game in no time.

```
CS 1 REM ################################
JO 2 REM #      TEN PIN BOWLING         #
NI 3 REM #     by Denis Thornton        #
SF 4 REM # ---------------------------- #
RZ 5 REM #  NEW ATARI USER - FEB 1993   #
CX 6 REM ################################
NM 7 REM
FU 10 GOTO 10000
TU 52 JS=JS+1:D=0:IF STRIG(JSP)=0 AND NP<
   7 AND IS>520 THEN IS=IS-40:D=1
EO 54 IF JS>50 THEN RETURN
EU 56 IF USR(ADA,JS,D)=0 THEN 52
UC 58 A=SA+IS+JS:IF PEEK(A)=PN THEN LB=A:
   POKE LB,0
CZ 60 IF PEEK(A+1)=PN THEN LB=A+1:POKE LB
   ,0
QC 62 IF PEEK(A+41)=PN THEN RB=A+41:POKE
   RB,0
VL 64 X=0.92:IF D=0 THEN X=0.6
HO 66 IF R>1 THEN X=X-0.1
DV 68 SOUND 0,0,0,0:IF LB=RB THEN 52
WV 70 IF LB=0 THEN 78
CH 72 SOUND 0,128,10,14
WG 74 NP=NP+1:LB=LB-39:IF PEEK(LB)<>PN OR
    RND(1)>X THEN LB=0:GOTO 78
TR 76 POKE LB,0
IJ 78 SOUND 0,0,0,0:IF RB=0 THEN 68
CE 80 SOUND 0,128,10,14
MP 82 NP=NP+1:RB=RB+41:IF PEEK(RB)<>PN OR
    RND(1)>X THEN RB=0:GOTO 68
EM 84 POKE RB,0:GOTO 68
KI 400 POSITION 4,13:PRINT "FRAME ";F
DS 402 POSITION 16,13:PRINT P;C$(2*P-1,2*
   P);" PLAYER'S TURN"
NT 404 X$=" ":IF R>1 THEN X$="■"
QO 405 POSITION 38,13:PRINT X$
MR 408 GOSUB 870:GOSUB 880:POKE PENABE,3:
   GOSUB 900:IF R=1 THEN GOSUB 1000
FA 410 IF STRIG(JS(P))=0 THEN 410
MD 415 IF STRIG(JS(P))>0 THEN 415
GF 420 IF STRIG(JS(P))=0 THEN 420
JP 430 POSITION 2,21:PRINT "| ":JS=JS+1:X
   =USR(ADR(A$),JS,D)
VG 435 FOR K=1 TO 15:NEXT K
NS 440 POSITION 2,21:PRINT " \":JS=JS+1:X
   =USR(ADR(A$),JS,D)
SB 445 FOR K=1 TO 10:NEXT K
ZK 500 RB=0:LB=0:NP=0:JSP=JS(P):ADA=ADR(A
   $):GOTO 52
SC 550 FOR I=0 TO 127:POKE PLAYER+128+I,0
   :NEXT I:POKE PCOL+1,3*16+2
NF 560 RESTORE 580:FOR I=0 TO 15:READ X:P
   OKE PLAYER+128+84+I,X:NEXT I
KB 570 POKE PHOR+1,4*2+48:POKE PENABE,3
WV 580 DATA 24,60,126,255,255,195,189,189
   ,189,189,195,255,255,126,60,24
DC 590 POSITION 3,21:PRINT "\":POSITION 3
   ,16:PRINT "/":RETURN
VG 670 RESTORE 675:FOR I=1 TO 58:READ X:A
   $(I,I)=CHR$(X):NEXT I:RETURN
KY 675 DATA 165,20,197,20,240,252
YZ 680 DATA 104,104,104,10,10,24,105,48,1
   41,0,208,104,104,240,13,162,68
DH 682 DATA 189,4,6,157,0,6,232,224,112,4
   8,245,169,0,141,30,208,162,1,165
RE 684 DATA 20,197,20,240,252,202,208,247
   ,134,213,173,4,208,133,212,96
UL 700 X$=STR$(NP):IF NP=0 THEN X$="-"
WY 710 IF RD>1 THEN X$=CHR$(ASC(X$)+128)
WQ 720 POSITION P(FD)+RD,3*P-2:PRINT X$:R
   ETURN
GZ 750 IY=3*P-1:JX=P(FD)+1:IF FD>3 THEN J
   X=JX-1:IF FD=10 THEN JX=P(FD)+2
SB 760 Y$=STR$(S(P,FD)):MAXC=2:IF FD>3 TH
```

```
   EN MAXC=3
LF 770 JX=JX+MAXC-LEN(Y$):POSITION JX,IY:
   PRINT Y$:RETURN
PU 800 SA=PEEK(88)+256*PEEK(89):CURSOR=75
   2:PPM=54279:PHOR=53248
VO 810 PSIZE=53256:PCOL=704:PENABE=53277:
   PLAYER=1536:BOT=4*21+16:PN=84
XH 820 PLIN=559:RETURN
LV 830 POKE PPM,4:POKE PLIN,46:FOR I=0 TO
    3:POKE PHOR+I,0
LZ 840 POKE PHOR+I+4,0:POKE PSIZE+I,0:NEX
   T I:POKE PCOL,0:RETURN
KG 870 FOR I=8 TO 127:POKE PLAYER+I,0:NEX
   T I:RETURN
DM 880 RESTORE 890:FOR I=2 TO 7:READ X:PO
   KE PLAYER+BOT+I,X:NEXT I:RETURN
MG 890 DATA 60,126,126,126,126,60
JX 900 JS=1:IS=40*21:D=0:X=USR(ADR(A$),JS
   ,D):POSITION 2,21:PRINT "/ ":RETURN
XB 1000 FOR K=0 TO 3
BD 1010 J=38:FOR I=15+2*K TO 18+K
BN 1020 POSITION J,I:PRINT "●":J=J-1:NEXT
    I:NEXT K:RETURN
GZ 1200 POSITION 4,14:PRINT "──────────────
   ────────────────────────"
NS 1210 POSITION 4,23:PRINT "──────────────
   ───────────────────────";
QP 1220 POSITION 0,0:PRINT :POKE SA+23*40
   +39,77:RETURN
LL 1400 PRINT "K":POSITION 1,0:PRINT "┌──
   ┬──┬──┬──┬──┬──┬──┬──┬──┬──┬──────┐";
ZI 1410 FOR I=1 TO 4:POSITION 1,3*I-3
NR 1420 IF I>1 THEN PRINT "├──┼──┼──┼──┼
   ──┼──┼──┼──┼──┼──────┤";
CG 1440 POSITION 1,3*I-2:PRINT "| ■| ■| ■
   | ■| ■| ■| ■| ■| ■| ███|";
PW 1450 POSITION 1,3*I-1:PRINT "|  |  |
   |  |  |  |  |  |  |    |";
GG 1455 NEXT I
NX 1460 POSITION 1,12:PRINT "└──┴──┴──┴──
   ┴──┴──┴──┴──┴──┴──────┘":RETURN
RR 2000 PRINT "K":RESTORE 2002:FOR I=0 TO
    7:READ X:POKE 1536+I,X:NEXT I
YR 2002 DATA 72,169,52,141,24,208,104,64
BV 2004 POKE 512,0:POKE 513,6:X=PEEK(560)
   +256*PEEK(561)+5+12
JY 2005 K=PEEK(X):IF K<128 THEN K=K+128
BA 2006 POKE X,K:INV=PEEK(54286):K=INV:IF
    K<128 THEN K=K+128
VU 2008 POKE 54286,K
HP 2010 SETCOLOR 1,0,12:SETCOLOR 4,3,4:GO
   SUB 1400:GOSUB 1200
RN 2020 GOSUB 550:FOR F=0 TO 10:FOR P=1 T
   O MP:S(P,F)=0:NEXT P:NEXT F
WD 2030 FOR F=1 TO 10:FOR P=1 TO MP
QL 2040 R=1:GOSUB 400:N1=NP:IF S(P,F-1)<>
   -1 THEN 2060
TN 2050 S(P,F-1)=S(P,F-2)+10+NP:FD=F-1:GO
   SUB 750
BI 2060 IF S(P,F-1)<>-2 THEN 2090
CA 2070 IF S(P,F-2)<>-2 THEN 2090
XK 2080 S(P,F-2)=S(P,F-3)+20+NP:FD=F-2:GO
   SUB 750
DA 2090 IF NP=10 THEN 2170
LF 2100 RD=1:FD=F:GOSUB 700:R=2:GOSUB 400
VF 2110 IF S(P,F-1)<>-2 THEN 2130
CM 2120 S(P,F-1)=S(P,F-2)+10+N1+NP:FD=F-1
   :GOSUB 750
LP 2130 IF N1+NP=10 THEN 2160
LA 2140 RD=2:FD=F:GOSUB 700:S(P,F)=S(P,F-
   1)+N1+NP
DQ 2150 GOSUB 750:GOTO 2180
DH 2160 RD=2:FD=F:X$="/":GOSUB 710:S(P,F)
   =-1:GOSUB 2500:GOTO 2180
NR 2170 RD=2:FD=F:X$="X":GOSUB 710:S(P,F)
   =-2:GOSUB 2540
XJ 2180 NEXT P:NEXT F
ZP 2200 POSITION 4,22:PRINT "Want to play
    again ";:INPUT Q$
BQ 2205 IF Q$="Y" THEN POKE PHOR+1,0:GOTO
    2010
FB 2210 IF Q$="N" THEN 2220
OZ 2215 GOTO 2200
UD 2220 POKE 54286,INV:POKE PHOR+1,0:POKE
    CURSOR,0:POKE PENABLE,0:GRAPHICS 0:EN
   D
WN 2500 IF F<10 THEN RETURN
VP 2510 R=1:GOSUB 400:RD=3:FD=F:IF NP<10
   THEN GOSUB 700
TZ 2520 IF NP=10 THEN X$="X":GOSUB 710
FQ 2530 S(P,F)=S(P,F-1)+10+NP:GOSUB 750:R
   ETURN
WZ 2540 IF F<10 THEN RETURN
DP 2550 R=1:GOSUB 400:N1=NP:IF S(P,F-1)<>
   -2 THEN 2570
UY 2560 S(P,F-1)=S(P,F-2)+20+NP:FD=F-1:GO
   SUB 750
TV 2570 S(P,F)=S(P,F-1)+10+NP:RD=3:FD=F:I
   F NP=10 THEN 2600
PY 2580 GOSUB 700:R=2:GOSUB 400:RD=4:IF N
   1+NP<10 THEN GOSUB 700
YQ 2590 IF N1+NP=10 THEN X$="/":GOSUB 710
XB 2595 S(P,F)=S(P,F)+NP:GOSUB 750:RETURN
BU 2600 X$="X":GOSUB 710:R=1:GOSUB 400:RD
   =4:IF NP<10 THEN GOSUB 700
TY 2610 IF NP=10 THEN X$="X":GOSUB 710
VO 2620 S(P,F)=S(P,F)+NP:GOSUB 750:RETURN
ES 10000 PRINT "K":DIM A$(58),C$(8),X$(4)
   ,Y$(4),Q$(1),S(4,10),P(10),JS(4)
AO 10500 POSITION 9,7:PRINT "*** B O W L
   I N G ***"
CB 11500 POSITION 10,12:?
DP 12000 ? " ":? " "
EY 12500 PRINT "The ball is rolled by pre
   ssing then"
FD 13000 PRINT "releasing the button on a
    joystick."
FA 13500 PRINT "Pressing the button again
    will cause "
DG 14000 PRINT "the ball to curve to the
   left."
YE 20000 GOSUB 800:GOSUB 670
OL 21000 RESTORE 22000:FOR I=1 TO 10:READ
    X:P(I)=X:NEXT I:C$="STNDRDTH"
MV 22000 DATA 1,4,7,11,15,19,23,27,31,34
OC 22100 GOSUB 830:POSITION 2,19:PRINT "H
   ow many want to play ";:INPUT MP
MF 22200 IF MP>4 THEN PRINT "MAXIMUM IS 4
   ":GOTO 22100
AE 22300 JS(1)=0:PRINT :IF MP<1 THEN 2220
CF 22400 IF MP=1 THEN PRINT "Use a joysti
   ck plugged into 1ST jack.":GOTO 22480
AD 22410 PRINT "How many joysticks do you
    have ";:INPUT NJ
UZ 22430 K=1:FOR I=1 TO MP:JS(I)=K-1:K=K+
   1:IF K>NJ THEN K=1
XV 22440 NEXT I:PRINT "K":PRINT
WU 22450 FOR I=1 TO MP:PRINT "The ";I;C$(
   2*I-1,2*I);:K=JS(I)+1
VD 22460 PRINT " Player will use the Joys
   tick"
VW 22470 PRINT "plugged into the ";K;C$(2
   *K-1,2*K);" jack.":PRINT :NEXT I
NV 22480 POKE CURSOR,1:POKE 53279,0:PRINT
    :PRINT "Press START";
MC 22490 IF PEEK(53279)=7 THEN 22490
SY 22500 GOTO 2000
```

FIRST STEPS IN ASS

Welcome to the penultimate article in the series!

This time we are mainly concerned with the interfacing of machine code into BASIC. Machine code is fine on its own, but there are things which are very complicated to program in machine code which BASIC does easily, for instance complicated calculations. If you combine Basic and machine code you get the best of both worlds.

Before we get into this, you need to be introduced to four new commands.

Daniel Lea brings you some more commands and examples of programming in assembler

FOUR MORE COMMANDS

PHA - *PusH Accumulator onto stack*

This command puts the value of the accumulator onto a set of memory addresses known as the stack.

The stack lives in page 1 i.e. $100 to $1FF. It works like a pile of papers in that when you put something on it, it goes onto the top of the stack. When you take something off the stack you start with the most recent byte. This arrangement is called a LIFO arrangement, i.e. Last In First Out. The stack pointer in the status register is used by the processor to point to the top of the stack in page 1.

PHP - *PusH status reg. (P) onto stack*

This puts the status register onto the stack.

PLA - *PulL Accumulator from stack*

Takes a byte from the top of the stack and stores it in the accumulator.

PLP - *PulL Status reg.(P) from stack*

Takes a byte from the top of the stack and puts it in the status register.

The main use of the above commands is in subroutines to make sure the registers are unchanged after the subroutine e.g.

```
PHP     ; put status register onto stack
PHA     ; push accumulator onto stack
TXA     ; put
PHA     ; X onto stack
TYA     ; put
PHA     ; Y onto stack
......  ;subroutine
PLA     ;pull
TAY     ;Y register from stack
PLA     ;pull
TAX     ;X register from stack
PLA     ;pull accumulator from stack
PLP     ;pull status register from stack
```

Notice in the example firstly the way the X and Y registers are put onto the stack since there are no direct commands available. Notice also, and more importantly the order in which the values are removed from the stack and compare it with how they are put on.

Also remember you don't, of course, need to go through this lot for every subroutine, because often the values in A,X,Y and P don't matter after the subroutine or the results may be passed to main loop.

As well being used as above, the stack is also used in subroutines without your knowledge. When you JSR somewhere the current program counter (i.e. the point in the program the CPU is at) is stored on the stack and pulled off again when you RTS so it jumps back to the correct place. So you must be careful, especially in a subroutine, to pull off exactly the same number of bytes as you push on otherwise everything may mess up (the computer will most likely crash). You have been warned!

THE STACK POINTER

The stack pointer was mentioned earlier. Two commands can be used to alter or read its position in page 1. These are TXS (Transfer X to Stack pointer) and TSX (transfer Stack pointer to X). As with PLA, PLP, PHA and PHP no address is used.

INTERFACING WITH BASIC

PLA has uses in interfacing with Basic. The Basic command which is used to run a machine routine is X= USR(Address, Param1, Param2, ... Param127).

The simplest format is: X=USR(address), e.g.

X=USR(1536)

which runs a program stored at 1536 ($0600 - or page 6). When this is done Basic first puts the current position it is in onto the stack, low byte first, so it can return back once the

SSEMBLY Part 4

routine is finished. Then a byte for the number of parameters is put on the stack (none in this case).

For a fully working machine code program you need to first PLA the number of parameters byte and at the end of the program RTS will return control to Basic.

The other case is where the X=USR has some parameters. In this case as before the current position in Basic is put on the stack. Then the parameters are put on the stack starting with the last parameter and finishing with the first. Each parameter takes up two bytes (even if it is less than 256) so the parameter can range from 0 to 65535. The low byte of the parameter is put on the stack first followed by the high byte. Then finally the number of parameters byte is put on the stack.

The order of the above is very important when it comes to using the parameters in a machine code program. Remembering that the most recent addition comes off the stack first things would work out roughly as follows:

```
PLA                     ; number of parameters
PLA                     ; high byte of parameter 1
STA PARAM1+1
PLA                     ; low byte of parameter 1
STA PARAM1
PLA
STA PARAM2+1
PLA
STA PARAM2
etc.
[REST OF PROGRAM]
RTS                     ; Return control to BASIC
```

Remember always to pull off the correct number of bytes from the stack as have been put on or else the program will fail to return to Basic properly.

PROGRAM EXAMPLES

There is one Assembly program this time, however it is nothing new simply an adaptation of the clear RAM program for use in BASIC. It should give you ideas for how to adapt other programs.

There is still one tiny problem! Once you've written and assembled your beautiful machine code program, how do you load it into Basic. You cannot simply 'LOAD' the thing in. You can use DOS, however this is cumbersome. The solution is a little Basic program which I've written. It loads your assembled machine code file in and converts it into DATA statements. It produces a subroutine which can then be ENTERed into your program.

One small point I must mention is the program asks you if you want to produce ABSOLUTE or RELOCATABLE code.

```
10 ;
20 ;-----------------
30 ;CLEAR RAM (BASIC)
40 ;by DJL, JAN 1992
50 ;-----------------
60 ;
70 ;NB USE..
80 ;X=USR(1536,start address,length)
90 ;              [0-65535]     [0-255]
0100 ;
0110 ;Assemble the code to disk
0120 ;with 'ASM,,#D:CLEAR.OBJ'
0130 ;then load into BASIC converter
0140 ;
0150 ;
0160 ADDR=203 ;using page 0 addresses
0170 LEN=205  ;so code relocateable
0180 ;
0190 ;
0200  *=$0600
0210 ;
0220  PLA   ;number of parameters
0230  PLA   ;High byte of address
0240  STA ADDR+1
0250  PLA   ;Low byte of address
0260  STA ADDR
0270  PLA   ;High byte of length 0
0280  PLA   ;Low byte of length
0290  STA LEN
0300 ;
0310 ;MAIN LOOP
0320 ;
0330  LDX LEN
0340  LDA #0
0350 LOOP1 LDY #0
0360 LOOP2 STA (ADDR),Y
0370  DEY
0380  BNE LOOP2
0390  INC 204
0400  DEX
0410  BNE LOOP1
0420 ;
0430  RTS ;Return control to BASIC
```

Absolute is where the code is put at a fixed address e.g. Page 6. Relocatable is where the code can be positioned anywhere in memory without affecting its operation. In this case the code is stored in a string and X=USR(ADR(string$)) executes the program.

Of course you can't have something for nothing and therefore relocatable programs must follow certain rules. The crux of these rules is that no direct reference to the program itself is allowed. So no JMPs JSRs or .BYTE references within the program. Branching e.g. BEQ etc. is allowed because relative addressing is used. If you look at the 'Joystick Detector' from part 3. You can see a relocatable program and the problems that arise.

That's it for this issue, next time more fun! I'll be tying up loose ends and having a huge table of the 6502 instructions and some programs using DLI's. See you then!!

INFOCAB

A VOCABULARY READER FOR INFOCOM

Chris Patterson discovers a way to cheat ... sorry ... make Infocom adventures just a little easier to get to grips with

```
CS 1 REM ####################################
SN 2 REM #            INFOCAB               #
HL 3 REM #  Infocom Vocabulary Reader       #
BS 4 REM #     by Chris Patterson           #
SG 5 REM # -------------------------------- #
SS 6 REM #    NEW ATARI USER FEB 1993       #
CY 7 REM ####################################
QM 100 REM
VU 130 DIM BUF$(128):BUF$(1)=CHR$(0):BUF$
   (128)=CHR$(0):BUF$(2)=BUF$
UC 140 PR=1:CURRENT=0:LCT=0
EL 150 DIM IN$(1),B(3),C(5)
BI 160 DIM CH$(32):CH$="????? ABCDEFGHIJK
   LMNOPQRSTUVWXYZ"
PH 170 DIM MC$(4):MC$(1)=CHR$(104):MC$(2)
   =CHR$(76):MC$(3)=CHR$(83):MC$(4)=CHR$(
   228)
KR 180 DIM ND$(16):FOR LOOP=1 TO 16:READ
   BYTE:ND$(LOOP)=CHR$(BYTE):NEXT LOOP
PY 190 DATA 104,104,104,133,212,104,104,3
   7,212,133,212,169,0,133,213,96
FB 200 REM **
TE 210 GRAPHICS 0:SETCOLOR 2,12,4:SETCOLO
   R 1,0,12:POKE 82,0
LO 220 PRINT :PRINT "PUT INFOCOM DISK (SI
   DE A) IN DRIVE,":PRINT "THEN PRESS <RE
   TURN>";:INPUT #16;IN$
FH 230 REM **
IF 240 ADDR=8:GOSUB 530:TABLE=BYTE*256
FV 250 ADDR=9:GOSUB 530:TABLE=TABLE+BYTE
MH 260 ADDR=TABLE:GOSUB 530:TABLE=TABLE+B
   YTE+1
MM 270 ADDR=TABLE:GOSUB 530:SIZE=BYTE:TAB
   LE=TABLE+1
NJ 280 ADDR=TABLE:GOSUB 530:COUNT=BYTE*25
   6:TABLE=TABLE+1
CT 290 ADDR=TABLE:GOSUB 530:COUNT=COUNT+B
   YTE:TABLE=TABLE+1
FC 300 REM **
FC 310 PRINT :PRINT "OUTPUT TO PRINTER (Y
   =YES) ";:INPUT IN$:PRINT
AJ 320 PRT=0:IF IN$="Y" THEN PRT=1
OW 330 IF PRT THEN OPEN #PR,8,0,"P:":PRIN
   T #PR;"INFOCOM WORD LIST":PRINT #PR
FK 340 REM **
IJ 350 FOR WORD=0 TO COUNT-1
XQ 360 FOR LOOP=0 TO 3:ADDR=TABLE+WORD*SI
   ZE+LOOP:GOSUB 530:B(LOOP)=BYTE:NEXT LO
   OP
ID 370 Z1=USR(ADR(ND$),B(0),124):C(0)=1+I
   NT(Z1/4)
TR 380 Z1=USR(ADR(ND$),B(0),3):Z2=USR(ADR
   (ND$),B(1),240):C(1)=1+8*Z1+INT(Z2/32)
IO 390 Z1=USR(ADR(ND$),B(1),31):C(2)=1+Z1
NF 400 Z1=USR(ADR(ND$),B(2),124):C(3)=1+I
   NT(Z1/4)
FD 410 Z1=USR(ADR(ND$),B(2),3):Z2=USR(ADR
   (ND$),B(3),240):C(4)=1+8*Z1+INT(Z2/32)
NN 420 Z1=USR(ADR(ND$),B(3),31):C(5)=1+Z1
TU 430 IF C(0)=6 THEN 490
AY 440 FOR LOOP=0 TO 5:PRINT CH$(C(LOOP),
   C(LOOP));:NEXT LOOP:PRINT "  ";
CZ 450 IF  NOT PRT THEN 490
EG 460 IF LCT=0 THEN PRINT #PR;"     ";
QD 470 FOR LOOP=0 TO 5:PRINT #PR;CH$(C(LO
   OP),C(LOOP));:NEXT LOOP:PRINT #PR;"  "
   ;:LCT=LCT+1
KV 480 IF LCT=9 THEN PRINT #PR:LCT=0
ND 490 NEXT WORD
FE 500 REM **
FM 510 PRINT :PRINT :PRINT "END.":CLOSE #
   PR
NY 520 END
MI 530 REM ** DISK READ ROUTINE
XI 540 SECTOR=73+INT(ADDR/128)
LS 550 IF SECTOR=CURRENT THEN GOTO 640
RO 560 POKE 769,1:REM DUNIT=$01
EL 570 POKE 770,ASC("R"):REM DCOMND='READ
HZ 580 ZZ=ADR(BUF$)
```

INFOCAB is a neat little program which will read, from an Infocom adventure game disk, all the words which can be used when playing the game. There will be about 700 to 1000 words in each game. The words can be displayed on screen or printed out on an 80 column printer.

The user should note the following:

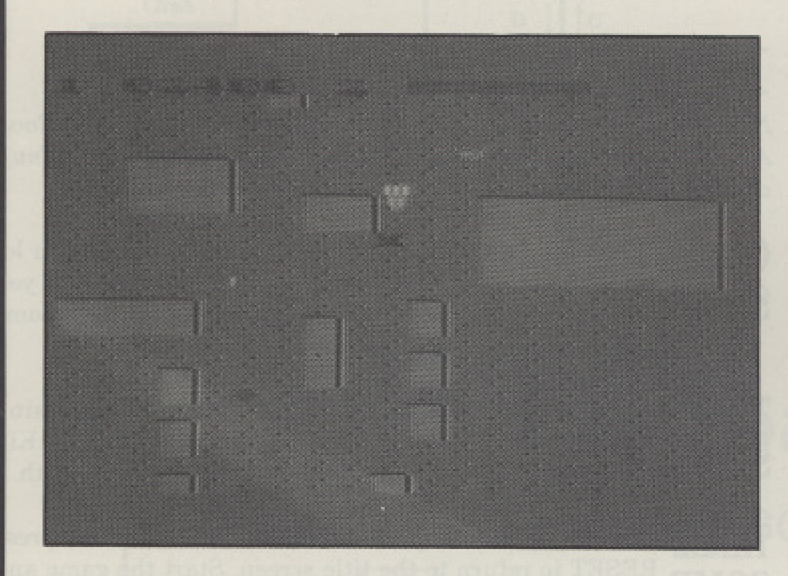
- The program has been tested on the following Infocom games: Cutthroats, Hollywood Hijinx, Moonmist. All of these are identified as "Version F" when the "$verify" command is entered. If you have problems with this program then check the version letter. The program may not work with other versions.
- The maximum length of words is 6 letters so some words will be truncated, e.g. EXAMINE appears as EXAMIN and UNSCRIPT as UNSCRI. Some very long words may be difficult to identify at first, e.g. SUPERBRIEF appears as SUPERB. Remember that, when playing a game, you can abbreviate long words to 6 letters to speed up typing.
- Some words that appear in the list cannot be used by the player in the game. These are the words that have a space in them, e.g. "I SVE" or "WHO SS". As far as I can tell, these entries are used by the program only and are, therefore, not available to the user.
- To print out on a 40 column printer (e.g. the ATARI 1020 printer) change LCT=9 in line 480 to LCT=4.

I hope that this program will help players who are stuck in an Infocom game and who need the appropriate word or words to progress.

```
TG 590 POKE 773,INT(ZZ/256):POKE 772,ZZ-2
   56*PEEK(773)
CN 600 POKE 779,INT(SECTOR/256):POKE 778,
   SECTOR-256*PEEK(779)
PA 610 ZZ=USR(ADR(MC$))
DU 620 IF PEEK(771)<>1 THEN 670:REM DISK
   ERROR
XH 630 CURRENT=SECTOR
XL 640 ZZ=ADDR-128*(INT(ADDR/128)):BYTE=A
   SC(BUF$(ZZ+1))
ZM 650 RETURN
FR 660 REM **
SQ 670 PRINT :PRINT CHR$(253);"DISK ERROR
    ";PEEK(771);", PROGRAM TERMINATED.":P
   OP :END
```

DISK BONUS

LAST FLIGHT of the PHOENIX



A machine code program by John Young

Years of interstellar conflict have left the Sigma system devastated. The desert planet Regulus has been worst affected, Xanthan blockades having caused an acute shortage of nuclear fuel. Only heavily shielded freighters can carry the radioactive fuel, but these cannot breach the blockade, so a canister must be towed by another ship's tractor beam. Very few spacecraft are now left, and thus the decommissioned 'Phoenix' has been refitted for the task. You must pilot the Phoenix on its final, life-saving mission.

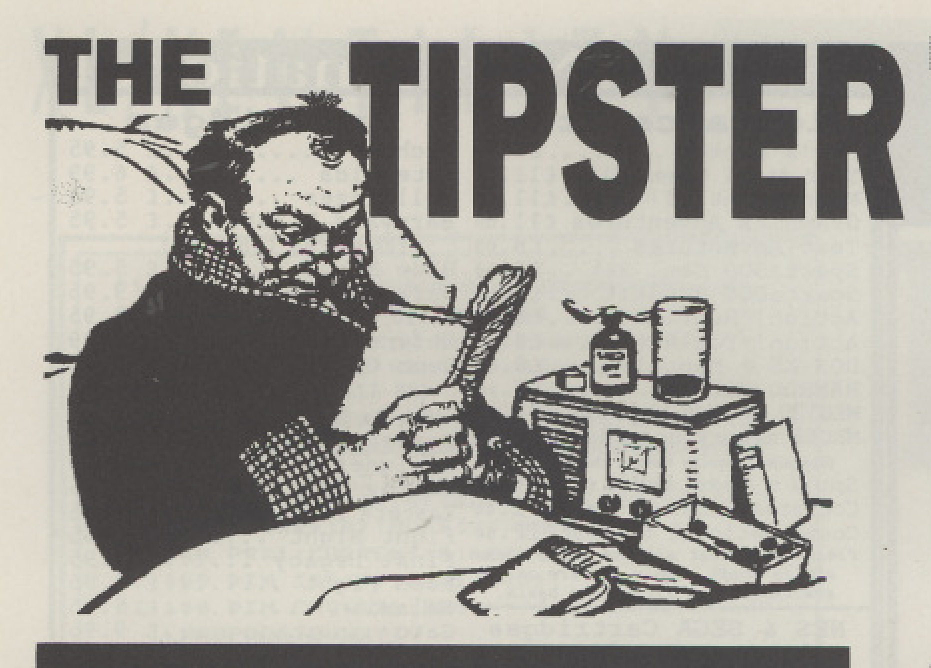
Use the joystick to steer the Phoenix over the surface of Regulus, activating the tractor beam with the fire button. You should deliver the nuclear fuel by passing the canister over collection points (red crosses). Fuel for your ship is collected by flying it over green diamonds, the current fuel level being shown by the green bar at the top of the screen.

The canister cannot touch green fuel supplies and nor can the Phoenix touch red collection points. The buildings on Regulus are a further hazard. You must complete four runs to save the planet. Xanthan missiles make an appearance on the second of these levels. Good luck!

Keyboard controls
OPTION - music on/off
SPACE BAR - pause on/off

Last Flight of The Phoenix is the bonus on this Issue's disk which also contains all of the other programs from this issue ready to run. Disk subscribers will have received their disk with the magazine but others can purchase the disk separately for just £2.95. Send a cheque or postal order to PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR and ask for the Issue 60 disk or order by phone on 0785 213928 using your credit card.

THE TIPSTER



Tips for the kingdom of the Public Domain

Christmas has come and gone and the turkey is nothing but a bad memory. Time to work off some of those extra pounds that Christmas "Do's" bring by indulging in the goodness that is the Tipster column.

I can't say as to what is in this issue's column simply because I don't know what's going to be in it myself, I did promise that the maps to Snowball by Level 9 would be in this issue but due to university work I have not been able to complete it so it will appear next time (I promise!). Meanwhile, shut your eyes and enjoy the experience that is the Tipster!

FETCH THE BONIO!

To start with this month Kevin and Sean Cooke of Exeter bring you the solutions to three adventures available from the Page 6 PD Library.

From Disk #39 - Tall Stories comes the map and solution for **WEREWOLF**.

To complete the game: Find the clippers and get them. Find the wolfsbane, cut it and eat it.

To get past the panther: Find the catnip and get it and then eat it in the same location as the panther.

Useful items: Catnip, Wolfsbane and clippers are placed randomly and therefore are impossible to map.

Also from Disk #39 is the solution to Harry.

5,1,5,4,4,5,5,3,3,RETURN,RETURN,RETURN

The number shown is the selection to choose.

From Disk #31 - Fantasies and Simulations comes the map and solution to **PHAROAH** *(see next page)*. As always with a solution the instructions as written backwards but in the correct order of execution. Therefore KICK PIG = KCIK GIP

E, E, TEG, N, W, OG, THGIL, E, S, KCIK, TEG, EVOM, TEG, S, HSUP, N, E, N, E, N, U, U, E, U, W, PORD, E, D, W, D, D, S, E, TEG, TEG, HSUP, W, W, N, N, TEG, W, S, EIT, BMILC, TEG, BMILC, N, E, S, S, S, W, S, HSUP, N, E, N, E, N, U, U, E, U, NEPO, N, PORD, PORD, S, D, W, D, D, S, W, W, S.

FOURSOME

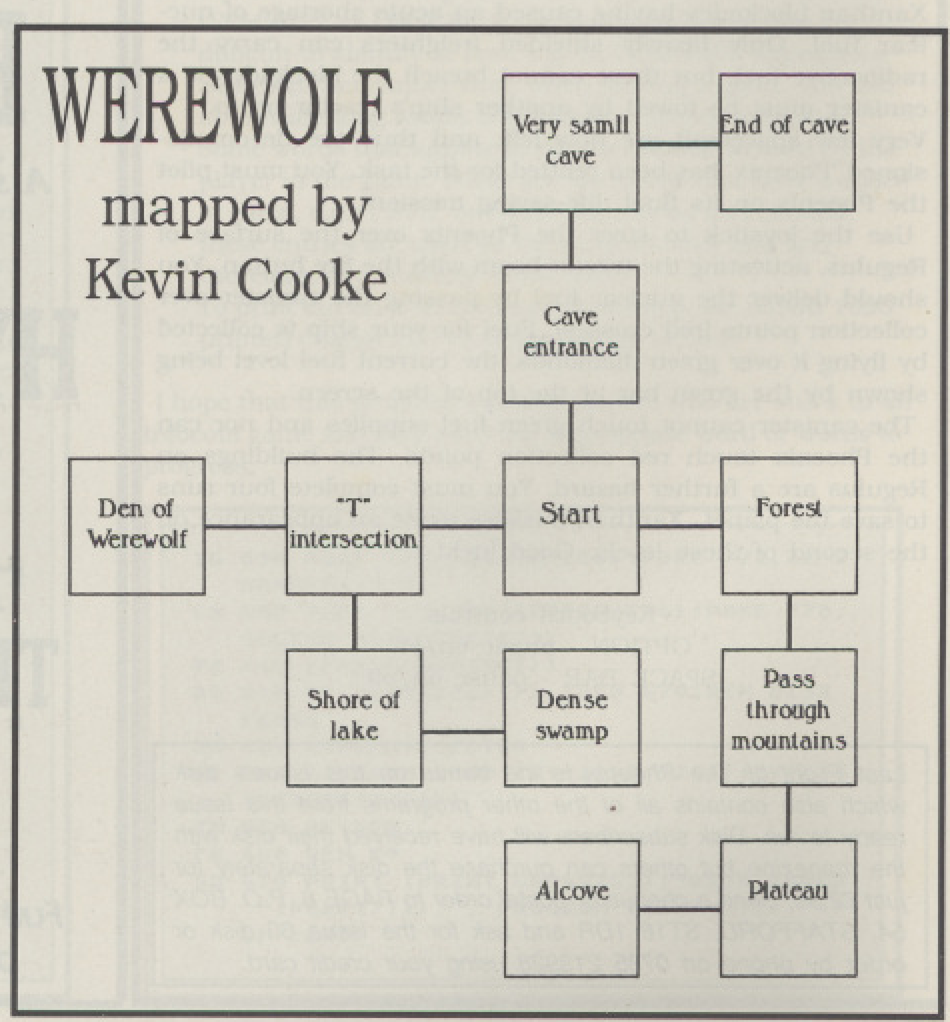
Ninja Commando, Missing One Droid, Rockford and Death Race. All of these come from Nick Bason of Willesden. Right, 'nuff chatter start tipping.

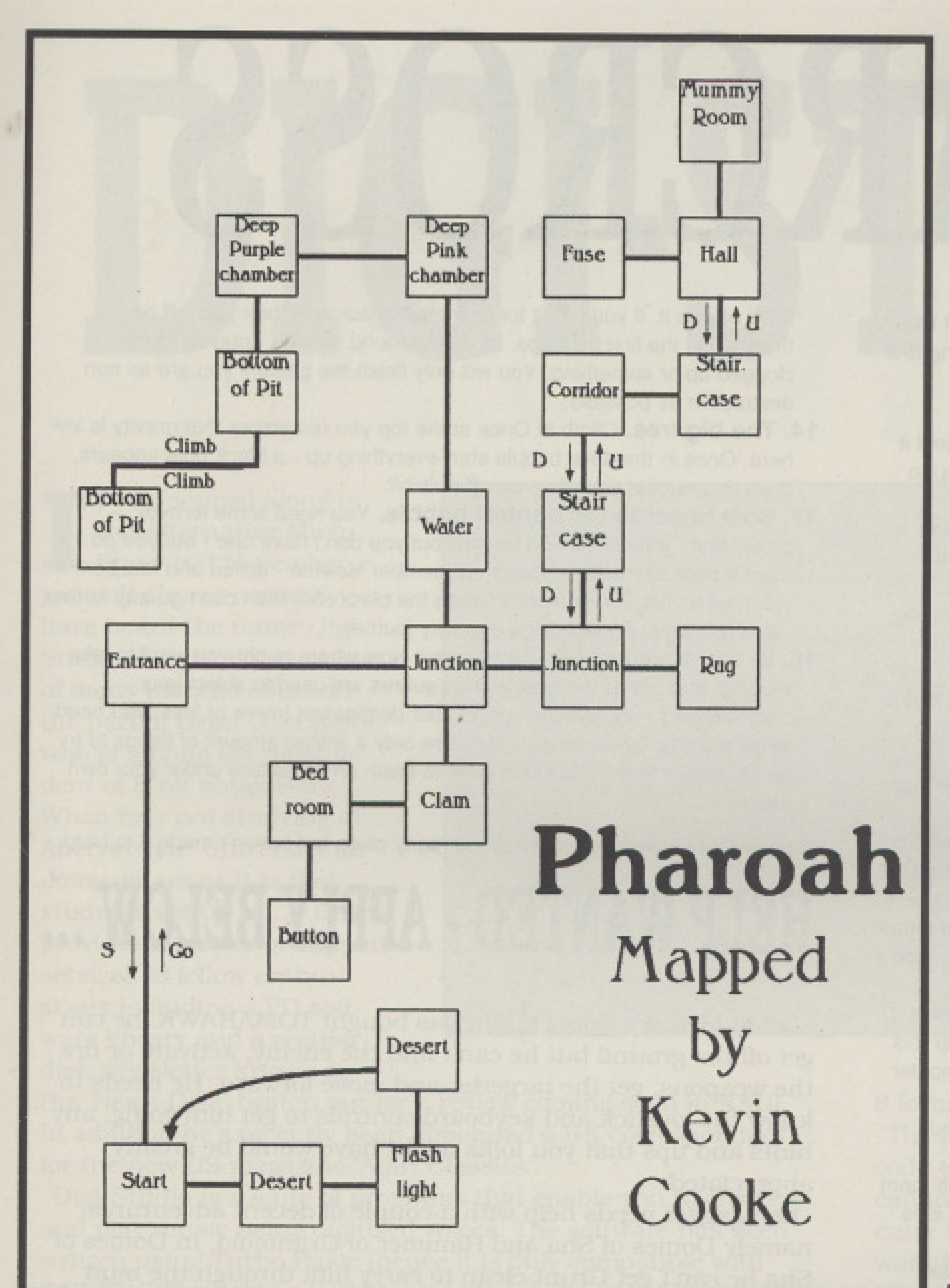
ONE SOME ***NINJA COMMANDO*** can be made a hell of a lot easier by staying at the first house on level one. If you kill enough of the enemy then you can get the awesome machine gun in no time at all.

TWO SOME ***MISSING ONE DROID*** has you pressing START until you get a heart appear on level one. Kill it and you'll get two extra life points to begin with.

THREE SOME Press START to pause ***ROCKFORD*** then press RESET to return to the title screen. Start the game and lo and behold the time is frozen at 99 seconds.

FOUR SOME If you stay on the far left of the track in ***DEATH RACE*** you only need to dodge a few cars. This allows you to attain a speed of 300 mph. Completing the game is now a doddle.





Pharoah

Mapped by Kevin Cooke

Ultima IV

Here are the tips to the final part of Ultima IV, all courtesy of M.G. Rice of Plymouth.

After entering the Abyss you are required to answer a question before being allowed to descend each level, here are the answers to each of these questions:-

LEVEL 1 TRUTH=BLUE=HONESTY
LEVEL 2 LOVE=YELLOW=COMPASSION
LEVEL 3 COURAGE=RED=VALOUR
LEVEL 4 TRUTH+LOVE=GREEN=JUSTICE
LEVEL 5 LOVE+COURAGE=ORANGE=SACRIFICE
LEVEL 6 COURAGE+TRUTH=PURPLE=HONOR (make sure its spelt like this)
LEVEL 7 TRUTH+LOVE+COURAGE=WHITE=SPIRITUALITY
LEVEL 8 BLACK=HUMILITY

Then there are 12 more questions:-

1. HONESTY
2. COMPASSION
3. VALOUR
4. JUSTICE
5. SACRIFICE
6. HONOR (same spelling as before)
7. SPIRITUALITY
8. HUMILITY
9. TRUTH
10. LOVE
11. COURAGE
12. INFINITY

QUICK E's ... QUICK E's ... QUICK E's ... QUICK E's ...

From Simon Reeder of Rotherham comes another advice (Is this the collective noun for a group of tips and hints? If not what is it? Write and tell me!) for all of your favourite games.

If you would like to practice penalties with a friend in **KICK OFF** start a game in two player mode and then soon as the game starts press select and then go to the penalty option.

When you are on your last life in **AIRSTRIKE II** and are about to die press RESET and then press START and if you don't crash you will survive and carry on from where you left.

When in **SCREAMING WINGS** you come to the things that look like robots, hardly shoot at them and you will carry on until the end of the level.

In **SUPER SOCCER** shoot diagonally otherwise the goalie will save the goal.

Steven Nicklin of Tamworth says that to improve your chances of promotion in **LEAGUE CHALLENGE** then you should change your team name to anything alphabetically higher than Arsenal and then you will be put above any team on equal points and goal difference.

Just one tip this time from Jon Donohue of Bury and he says that if there is a dot moving up and down the edge of the screen at either end in **ROBIN HOOD** then there is an enemy about.

Eoghan Ryan of Co. Kilkenny has a nice little tipperooney for **LAS VEGAS CASINO**, it goes like this. To earn loadsa dosh go to the Baccarat table and bet on the dealer to win. Then deliberately make yourself lose. It don't always work but as the cat food advert goes "8 out of 10 gamblers prefer it"

SUMMER GAMES

A. Tomo of somewhere in Wales has sent in a way of beating even Ben Johnson in the 100m Dash and other events in Summer Games.

100m: Roll the joystick in circles, clockwise (6.23s)

Gymnastics: As your hands hit the beam, press and hold your button for a moment whilst holding top right (18.7)

Diving: To get the really high scores from the dives you have to obtain a high skill level, do this by beginning every dive in a tight tuck and only open up on entering the water. When you do open up, you must go through each tuck for a higher skill rating. Practice makes perfect. A. Tomo's highest scores are:-

FORWARD	205.00	SKILL	4.1
BACKWARD	210.75	SKILL	4.3
REVERSE	207.20	SKILL	4.2
INWARD	210.70	SKILL	4.3

GAUNTLET

Yet again GAUNTLET has given rise to another tip, this time from Stephen Hargreaves of Crewe. If you find it hard to pass tricky rooms that only have enough keys to get out in the right sequence then what you have to do is as follows. In two player mode both players can pick up the same key, enabling the room to be completed easily. All you have to do is both move to collect the same key (from the adjacent space) at exactly the same time. Incidentally this can also be used for collecting food and potions.



INFOCOM'S STARCROSS

Having persevered with and sussed Starcross, Stewart Hilson from Redfield in Bristol provides these hints and tips following my ancient plea for help to start the game.

1. **Getting started.** The mass detector gives you the name of the object it has found - use the mass detector output (which came in the disk box) to find and set your desired course.
2. **At the artefact.** To get through the airlock examine the sculpture and think of the solar system. Art should be a hands on experience! (If you manage to open the door then you will see what I mean.)
   At this point you will be presented with your first crystal rod - these are the key to the game.
3. **Getting the air supply fixed.** Exploration will lead you to a Red Rod which you should be able to get at with a bit of vandalism! You might feel a bit guilty afterwards though. You will also find an underground room with some machines in it - one of which has red slots, now isn't that a coincidence! Question is, which should you use? If your Chemistry isn't up to much then you'll just have to use trial and error.
4. **Getting the lights on.** Remember the machines mentioned earlier. To get this rod you must have met the "spider like" creature. Don't be afraid - if you can give it what it desires then you'll be alright. Listen to the creature - wouldn't you be bored in the same situation? What might you do to entertain yourself? If you have picked up everything that you've seen and examined it then you shouldn't have too much difficulty.
5. **Getting the computer on.** This really shouldn't cause any problems it is very straightforward - if you've got the necessary object. Remember this is an alien ship so don't expect it to be too obvious. Once on the computer isn't really used for anything.
6. **Finding another rod.** One rod is outside the ship - explore fully but don't go drifting away.
7. **The Coloured Disks.** These are very useful. Just experiment with them - the fact that they look like man hole covers should give you a good idea - but Beam Me Up Scotty is a better one.
8. **The Blue Rod and the Sphere.** A really tricky one this. First make sure you know what the two coloured disks can do for you. You need them both plus any other object. Dial position 4 is the key - note the description of the sphere here. Try putting things on the sphere, then twiddling the dial. Finally remember that it's not just you that the disks will transport.
   What follows now is a far more detailed description of what to do with the sphere and the blue rod. I have written it backwards so as not to spoil your game. The backwards spelling is different from the usual where the new format is as follows. GET THE TROUT = TUORT EHT TEG
   - **8a.** .3 ot laid eht nruT
   - **8b.** .erehps eht rednu sksid eht fo eno tuP
   - **8c.** .yawllah eht ni ksid rehto eht tuP
   - **8d.** .erehps eht fo pot no meti yna tuP
   - **8e.** .4 ot laid eht nruT.
   - **8f.** .dor eulb eht tropsnart osla lliw 'dleif' sksid eht - ti gnireggirt dna ksid eht no gnidnal - pord ot draeh eb dluohs erehps eht no tup uoy gniht ehT
   - **8g.** !ezirp ruoy teg ot yawllah eht ot og and kcab ksid eht teg ,3 ot laid eht nruT
9. **The village.** Just let the story lead you along. But make sure you don't need to go out any more! Make sure you don't let the chief off the hook - before or after getting what you want. Be persistent and you'll find the green airlock.
10. **The Weasels ship.** Getting the rod here is a bit of an unfair problem (in my opinion). It's not mentally taxing - you've got to try and find the right thing. You might try searching the skeleton but you won't find anything. Try doing other things to it (but don't overdo it). Once you have the rod you have to get out without being seen by the Chief (after all you've just desecrated a tomb!). If you've solved one of the earlier problems you should have no difficulty.
11. **The unicorns.** As far as I'm aware they are graceful but irrelevant.
12. **The maintenance mouse.** You may have discovered what it's up to by now through accident! Maybe its picked up something useful in the past, but where does it put all that rubbish and how might you get there? This is pretty logical Captain as Mr Spock would say.
13. **The ray gun.** As with all the objects you should try everything you can think of with it. If you use it for its intended purpose then you will be thwarted in the first instance. Its been around so long - maybe its got clogged up or something. You will only finish the game if you are as non destructive as possible.
14. **The big tree.** Climb it! Once at the top you remember that gravity is low here. Once in the drive bubble start everything up - a black hole appears, does that remind you of an on/off switch?
15. **How to get to the control bubble.** You need some form of propulsion - a rocket would be nice but you don't have one - but you do have a poor alternative though - remember Newton - action and reaction. If you haven't got 6 rods (not including the black rod) then don't go any further - you only have enough for a one way journey.
16. **In the drive bubble.** Insert away! Now where might you want to take the ship and get all the glory? The squares are used to select your magnification - once you've found your destination (more or less) you need to tell the ship where to go. There are only a limited amount of things to try so I'll leave it there - Its much nicer to finish an adventure under your own steam.

I hope that I haven't given away too many clues but haven't made it to hard.

HELP WANTED - APPLY BELOW ...

David Memery from Dublin has bought TOMAHAWK, he can get off the ground but he can't find the enemy, activate or fire the weapons, get the targetter and move forward. He needs to know the joystick and keyboard controls to get him going, any hints and tips that you folks might have would be greatly appreciated.

Ken Jagger needs help with a couple of decent adventures, namely Domes of Sha and Hammer of Grimmold. In Domes of Sha he can't get Grunt clean to carry him through the mud and how can he remove the thread from his skin without the program telling him it would be immodest to do so? In Hammer of Grimmold he needs to find the woodman's sharpening stone? He has tried looking, searching and examining his hut to no avail, both inside and out.

That about wraps it up once again for another issue. Stifle your tears and wailing 'cos I'll be back in just two short months with even more tips and tricks so take care and enjoy yourself. I'm back at university by the time you read this and computer science is proving to be exactly what I expected (even though the nights can be long and difficult in Milton Keynes).

Take care and keep the tips coming!

All the usual bits to :-

**THE TIPSTER,
PAGE 6
P.O. BOX 54,
STAFFORD
ST16 1DR**

PS. I need more maps and stuff so get mapping and send 'em in!

FREE CASSETTES!

If your hint, tip or map is used by The Tipster you can claim a FREE CASSETTE (from those currently available from The Accessory Shop) but you won't get one if you don't send something to The Tipster - get tipping now!

HOW TO CLAIM

If you see your name in this column just drop us a line and say 'My name is ..... and I claim my free Tipster cassette' and simply tell us which cassette you would like (give an alternative just in case). We will whip it off to you poste haste (or straight away). If you prefer you can always give us a ring instead on the usual number

DIGI-STUDIO

DIGI-STUDIO
SAMPLE EDITOR
(c)1992 Dean Garraghty

MAIN MENU

1.Edit sample
2.Clear sample
3.Save sample
4.Copy page x to y,z
5.Load sample
6.Hear sample
7.Copy page x,y to z
8.Reverse sample
9.Graph

If you popped along to the Alternative Micro Show last November you will almost certainly have heard the name Digi-Studio. It's the culmination of many months effort on the part of Dean Garraghty, who is among the most ardent of 8-bit supporters. When he's not studying at Aberystwyth University (or doing whatever it is that students get up to...), Dean provides a variety of support services to fellow enthusiasts including a PD software library and a regular disk newsletter known as the 'News-Disk' (watch out for a review coming soon in NAU). In addition he's recently been appointed a UK correspondent for the new US magazine 'Atari Classics'.

Digi-Studio is a suite of programs that enable you to create and play music using digitised voices. The software has been written using Turbo Basic (hence it is only compatible with 64K XL/XE machines) and is supplied on two double-sided disks. The first contains the main program files and the second a wide variety of example tunes and voices. A large printed manual is included to explain the operation of the various components and also to give helpful tuition on music notation. The manual is generally well written and laid out, apart from the unfortunate absence of a contents page and index!

When you boot up the program disk you're initially presented with a menu of five options. The first choice, Keyboard Player, is perhaps the quickest way to sample Digi-Studio's capabilities. The Keyboard Player lets you perform music 'live' using your Atari's keys as if they belonged to a synthesizer keyboard. You can load digitised sounds from disk into three memory banks which can then be toggled by a simple key press. By making use of the directory function you'll discover a total of fifty five sounds ranging from Guitar and Trumpet to Laughter and Pigs! The keys are touch responsive, meaning they produce sound for as long as you hold them down - though not uninterrupted since the digitised samples are obviously restricted in length. There's no recording facility of the sort you may have seen in some ST 'sound trackers' - perhaps this is planned for a future version?

Tune Player, the next option on the main menu, plays predefined tune files using any available sound samples. There are forty-four ready constructed tunes on the disks but you can also compose your own using other components of the software. Load and directory functions are available here and apply to both samples and tunes.

With the Sample Editor you can edit Digi-Studio samples to improve on the existing sound or to actually create a new one. The editor allows you to copy a page of the sample (this is defined as a set of 32 speaker positions) from one point to another, and also reverse all or specific sections of it. You edit the sample using a joystick to determine the loudness of its individual speaker positions. Creating an entire sample in this way would be too time consuming for practical purposes but the copy functions can be used to duplicate a perfected section several times. A graph option displays the current sample waveform in graphics mode 8 format - interesting, though not particularly useful!

The Digi-Studio Tune Compiler produces stand alone Basic code to play predefined tune files stored on disk, which you can incorporate into your own Basic programs. All you do is enter the relevant details, including the line number where you want the tune routine located, and the Tune Compiler sets to work creating the Basic listing. Provided Digi-Studio is mentioned as the source you're permitted to distribute the end product complete with the digitised tune files.

The final menu option is also the most complex. LIDS - or Language for Instructing Digitised Sound - is a form of programming language especially devised to help you write tunes in the Digi-Studio format. With LIDS you can convert sheet music into tune files using simple key words (too numerous to mention!) which correspond to standard music notation. In order to get the most out of LIDS, you will therefore need some idea of how to read music. One section of the manual describes the basic principals though it doesn't claim to be an authoritative tutorial, so further study may be required. A simple text editor is provided for programming purposes though you can use any word processor. Once complete you must use the LIDS compiler to convert your code into a playable tune file.

It's obvious that the author has a genuine interest in the subject matter, and has therefore put a great deal of effort into the functionality of the Digi-Studio modules. Certain areas of programming could be improved - there are fairly long delays in places and error checking on keyboard inputs is not always handled in a particularly friendly way - but the proof of the pudding is the sound, and this can be quite impressive. You are unlikely to use Digi-Studio for serious purposes but it's great fun and educational too!

Digi-Studio is produced by Dean Garraghty, 62 Thomson Avenue, Balby, Doncaster. DN4 0NU. The price is £12 and £1 should be added to cover the cost of delivery. Further details of Digi-Studio and other products are available on request.

RENOVATE IT!

Can't write your own programs from scratch? Well, there's just as much fun to be had by tinkering with other peoples, as Ed Hall has found out

I bought my first computer so I could play games. Consequently, I didn't get much out of the magazines I subscribed to but as the years passed a subtle transformation took place. Not only did I begin using my computer for practical purposes. I also found myself tinkering with programs, even though I had absolutely no previous programming experience. One day I realized something quite amazing - programming itself is a form of play. I was hooked.

Suddenly the back issues of computer magazines became a valuable resource, and prowling through them emerged as a favourite activity. Since my computer skills are continually evolving, I always find something of interest.

Here are a couple of programs that grew out of my ruminations.

CUSTOM CURSOR KIT

In the November 1984 issue of ANTIC there's a program called "Create Your Own Cursor" by Jerry White. When I first came across it, it filled me with enthusiasm. Now I could redesign a cursor in any shape or colour I wanted. All I had to do was change the data numbers in a certain line. Huh? Change them to what? The article didn't say, and I went away grumbling.

Sometime later I came across another little program that caught my interest. "Joystick Cursor" by Ted Stockwell appeared in the May 1986 issue of ANTIC. It transferred cursor control to a joystick.

By this time my computing skills had improved somewhat, so I began fiddling around with both programs, and finally managed to hitch them together. (See Listing 1.) Then I puzzled out the secret of the mysterious data statements.

128	64	32	16	8	4	2	1	Totals
0	0	0	0	X	X	0	0	12
0	0	0	X	X	0	0	0	24
0	0	X	X	0	0	0	0	48
0	X	X	0	0	0	0	0	96
0	0	X	X	0	0	0	0	48
0	0	X	0	0	0	0	0	32
0	X	0	0	0	0	0	0	64
X	0	0	0	0	0	0	0	128

Jerry White's cursor is actually a player, which is designed on an 8 x 8 grid. The illustration shows how to arrive at the 8 numbers (listed vertically) needed for a lightning bolt cursor.

Eight numbers are required, and none may exceed a value of 240. Enter 0 for a blank row.

After figuring this out, I celebrated with an orgy of shape-designing. Here's what I came up with:

PACMAN: 30,63,118,124,120,120,60,30

TIE-FIGHTER: 0,65,73,93,127,93,73,65

INSECT: 66,36,24,126,153,36,66,129

BULLDOZER: 0,64,64,122,2,122,134,121

HAND: 96,50,26,29,54,111,95,63

COILED ARROW: 62,34,42,42,42,174,224,240

CROOKED ARROW: 240,192,160,144,144,16,16,16

INSERT SYMBOL: 0,128,64,32,32,64,128,0

MACINTOSH-STYLE I-BEAM: 160,64,64,64,64,64,64,160

HORIZONTAL LINES: 0,240,0,240,0,240,0,240

HOLLOW SQUARE: 240,144,144,144,144,144,144,240

UNDERLINE: 0,0,0,0,0,0,0,240

Cursor shape data numbers go in line 650. Cursor blinking rate (RATE) is found in line 660. Enter a zero if you don't want the cursor to blink. For cursor colour (COLOUR), enter any

```
CS 1 REM ##################################
ZX 2 REM #      CUSTOM CURSOR KIT         #
AR 3 REM #   J.White, T. Stockwell        #
MD 4 REM #   E. Hall, A Waranowitz        #
SG 5 REM # ------------------------------ #
SA 6 REM #  NEW ATARI USER - FEB 1993     #
CY 7 REM ##################################
QM 100 REM
HC 140 GRAPHICS 0:POKE 752,1
JD 150 POSITION 16,3:? "┌─────────┐┐┐┐"
JM 160 POSITION 16,4:? "|█████████▌▌▌|"
ZA 170 POSITION 16,5:? "████ ●●█████┐"
AM 180 POSITION 16,6:? "████ ████████|"
EG 190 POSITION 16,7:? "◣██▙▄██████▟▘"
WV 200 POSITION 16,8:? " ███████████"
XO 210 POSITION 16,9:? " ███████████"
TQ 220 POSITION 17,10:? "◣███████▌▌▌"
WM 230 POSITION 17,11:? "      ▌▌▌█"
XY 240 POSITION 17,12:? "      /|\"
HQ 250 REM JOYSTICK ROUTINE
UM 260 FOR Z=272 TO 319:READ X:POKE Z,X:N
   EXT Z:JOYSTICK=USR(272)
XI 270 DATA 104,160,27,162,1,169,6,32
CN 280 DATA 92,228,96,206,63,1,208,24
VT 290 DATA 165,0,141,63,1,173,120,2
EK 300 DATA 73,15,240,12,162,255,232,74
MO 310 DATA 144,252,189,59,1,141,252,2
HC 320 DATA 76,95,228,142,143,134,135,5
JV 330 REM CURSOR ROUTINE
OX 340 POSITION 9,9:? "JOYSTICK  "
PH 350 ROUTINE=(PEEK(106)-6)*256
OP 360 FOR Z=0 TO 60:READ X:POKE ROUTINE+
   Z,X:NEXT Z
PO 370 POSITION 7,9:? "CONTROLS ▀▀▀"
SP 380 FOR Z=61 TO 120:READ X:POKE ROUTIN
   E+Z,X:NEXT Z
GJ 390 POSITION 7,9:? "   CURSOR ▀▀▀"
NB 400 FOR Z=121 TO 180:READ X:POKE ROUTI
   NE+Z,X:NEXT Z
CI 410 POSITION 10,9:? "          ██▀▀▀▘":POSI
   TION 2,11:? """"
DS 420 DATA 104,165,212,24,105,36,133,212
SX 430 DATA 165,213,105,0,133,213,162,7
DI 440 DATA 160,144,177,212,157,0,6,136
XI 450 DATA 202,16,247,164,212,166,213,16
   9
XE 460 DATA 7,76,92,228,173,240,2,240
FG 470 DATA 124,173,43,2,240,4,169,0
NA 480 DATA 240,6,173,255,6,24,105,8
IF 490 DATA 141,255,6,48,104,160,254,169
CG 500 DATA 0,153,0,6,136,192,7,208
SW 510 DATA 248,169,10,141,194,2,141,20
BD 520 DATA 208,169,1,141,111,2,141,27
IB 530 DATA 208,169,0,141,10,208,169,0
PN 540 DATA 141,7,212,169,2,141,29,208
NS 550 DATA 169,58,141,47,2,141,0,212
ZV 560 DATA 166,85,164,84,165,87,13,147
WQ 570 DATA 2,240,12,173,191,2,201,4
ZN 580 DATA 208,35,152,24,105,20,168,138
DJ 590 DATA 10,10,105,48,141,2,208,152
YS 600 DATA 10,10,10,105,39,168,162,7
SY 610 DATA 189,0,6,153,0,6,136,202
AJ 620 DATA 16,246,76,98,228,169,0,141
YV 630 DATA 2,208,76,98,228
LP 640 REM NOW CUSTOMIZE IT!
ZT 650 DATA 12,24,48,96,48,32,64,128
IO 660 RATE=25:POKE ROUTINE+55,RATE
KS 670 COLOUR=28:POKE ROUTINE+74,COLOUR
XG 680 SPEED=2:POKE 0,SPEED
GC 690 REM Line 650: cursor shape data
TJ 700 REM Line 660: set blinking rate
KM 710 REM Line 670: set cursor colour
GW 720 REM Line 680: set cursor speed
LL 730 CURSOR=USR(ROUTINE)
```

Listing 1 - A flashing cursor

value from 0-255 in line 670. Finally, in line 680 poke location 0 with a number to control cursor speed.

Since the program takes a few moments to initialize, I added a final touch - a little guy who greets me with a message.

Now, whenever I power up my 8-bit, I can use my joystick to control a cursor which suits my mood. In fact, since my repertoire of joysticks includes one which masquerades as a mouse, I feel like I'm driving a brand new vehicle.

There was a slight glitch in Jerry White's original program, a bit of the player used for the cursor leaked into the top of the screen. Abe Waranowitz provided the fix (thanks, Abe!).

SOUND STICK 2

In another back issue of ANTIC I came across a program for editing sound statements with a joystick. It was a very short program (only 28 lines), but I started fooling around with it and managed to compress it even further by knocking off 9 lines.

Okay, that was fun, but the program wasn't much to look at, and I didn't like the way the joystick was set up. So I added a frame to display the sound values, and reworked the way the joystick worked.

There was another problem though. Whenever the user selected a different voice to work on, the values from the old voice were transferred to the new voice. I had a hunch that arrays were the answer to the problem, but I wasn't too sure how to do it. Then I stumbled across a similar joystick program in a book called "The Musical Atari" by Hal Glicksman. Hal used arrays to store joystick values, and the procedure was even simpler than I had hoped.

Take a look at Listing 2. Line 120 sets up three arrays, one each for pitch, tone and volume. Each array contains four elements. They are identified or labelled in the following fashion:

P(0), P(1), P(2), P(3); T(0), T(1), T(2), T(3); V(0), V(1), V(2), V(3)

where P=pitch, T=tone, V=volume, and the numbers represent voices 0-3.

Line 125 fills the arrays with zeroes, but when in use, they can hold any value assigned by the user via the joystick. For example, P(0)=245 means the pitch for voice 0 is 245, and V(2)=11 means the volume for voice 2 is 11. This allows the program to store and retrieve values when it switches between voices. Lines 200-215 read the joystick and store the values in the arrays. The variable A represents the current voice (0-3).

Great! We're all finished ... except ... don't those Graphics 0 screens get a little boring sometimes? How about adding some colour? No, not with the Setcolor statements, I mean by altering the display list. Unfortunately, that's way over my head but it's not a problem. There's a nice little utility (again from ANTIC) called Rainbow Screen Customiser, which does the job for would-be programmers like me. Hence, lines 135-145, and the data statements at the end of the program. You don't need to type these lines in, the program works fine without them (except for the GOSUB 325 in line 145, you need that) but that extra colour does look nice, doesn't it?

Hm, it also slows down the joystick a bit. Not a problem with the tone and volume values, since their range is small but the pitch values cover a much larger range (0-255) so as an afterthought, I slipped in a subroutine which allows the user

```
CS 1 REM ##################################
IC 2 REM #         SOUND STICK 2          #
XU 3 REM #           by Ed Hall           #
SF 4 REM # ------------------------------ #
RZ 5 REM #  NEW ATARI USER - FEB 1993    #
CX 6 REM ##################################
QM 100 REM
SI 110 GRAPHICS 0
SI 115 REM ARRAYS FOR STICK VALUES
QP 120 DIM P(4),T(4),V(4)
FV 125 FOR Z=0 TO 3:P(Z)=0:T(Z)=0:V(Z)=0:
   NEXT Z
TS 130 REM SET UP DL
RW 135 FOR Z=0 TO 47:READ X:POKE 1536+Z,X
   :NEXT Z
SK 140 FOR Z=0 TO 106:READ X:POKE 1584+Z,
   X:NEXT Z
FL 145 DL=USR(1584):GOSUB 325
QW 150 REM
EM 155 REM ───┤ MAIN LOOP ├──────────
QY 160 REM
PP 165 REM READ STICK
JC 170 X=STICK(0)
LW 175 IF STRIG(0)=0 THEN GOSUB 260
BE 180 IF PEEK(53279)<>7 THEN GOSUB 280
XQ 185 IF PEEK(764)=33 THEN P(A)=0:T(A)=0
   :V(A)=0:POKE 764,255:GOTO 225
SI 190 IF X=15 THEN 170
PJ 195 REM CHANGE VALUES
CV 200 IF X=14 THEN P(A)=P(A)+ST:IF P(A)>
   255 THEN P(A)=0
XZ 205 IF X=13 THEN P(A)=P(A)-ST:IF P(A)<
   0 THEN P(A)=255
UB 210 IF X=11 THEN T(A)=T(A)+SE:IF T(A)>
   14 THEN T(A)=0
FP 215 IF X=7 THEN V(A)=V(A)+OP:IF V(A)>1
   5 THEN V(A)=0
CV 220 REM PLAY & PRINT VALUES
EV 225 SOUND A,P(A),T(A),V(A)
YH 230 POSITION 15,10+A*2
MB 235 ? P(A),T(A),V(A);" ":GOTO 170
QV 240 REM
BJ 245 REM ───┤ SUBROUTINES ├──────────
QX 250 REM
XD 255 REM MOVE VOICE MARKER
TH 260 FOR Z=0 TO 3:POSITION 1,10+Z*2:? "
     ":POSITION 7,10+Z*2:? "   ":NEXT Z
BX 265 A=A+1:IF A=4 THEN A=0
CC 270 POSITION 1,10+A*2:? "──┤":POSITION
    7,10+A*2:? "├──":RETURN
VZ 275 REM CHANGE INCREMENTS
JK 280 IF PEEK(53279)=6 THEN ST=ST+1:IF S
   T>25 THEN ST=1
BX 285 IF PEEK(53279)=5 THEN SE=SE+2:IF S
   E>14 THEN SE=2
EP 290 IF PEEK(53279)=3 THEN OP=OP+1:IF O
   P>10 THEN OP=1
YA 295 POSITION 15,20:? ST;" "
KB 300 POSITION 25,20:? SE;" "
LX 305 POSITION 35,20:? OP;" ":RETURN
QQ 310 REM
RA 315 REM ───┤ CONTROL PANEL ├──────────
OS 320 REM
SW 325 POKE 752,1:POKE 82,1:POSITION 1,0
ZN 330 ? "┌───────────────────────────────
   ───────┐"
MS 335 ? "|       ┌┐┌┐┐┐┌┐ ┐  ┌┐┌┬┐┬┌┐┬┌  ┌
   ┐      |"
MT 340 ? "|       └┐│││││┤  └┐ │ ││ ├  ┌
   ┘      |"
PT 345 ? "|       ┘└┘└┘└┘└┘  ┘ ┴ ┴└┘└  └
   ─      |"
IK 350 ? "├─────────┬──────────┬─────────┬───
   ───────┤"
YK 355 ? "|  fire   | up/down  |  left   | r
   ight   |"
WE 360 ? "├─────────┼──────────┼─────────┼───
   ───────┤"
SM 365 ? " voice    | pitch    | tone    | v
   olume   "
SW 370 POSITION 1,19
LW 375 ? "         | start    | select  | o
   ption   "
SE 380 ? "|  incr.  |          |         |
          |"
CL 385 ? "└──┬──────┴──────────┴─────────┴───
   ────┬──┘"
TJ 390 ? "   └─ spacebar zeroes sound valu
   es ─┘"
YV 395 FOR Z=0 TO 3:POSITION 5,10+Z*2:? Z
   ,0,0,0:NEXT Z
TQ 400 POSITION 1,10:? "──┤":POSITION 7,1
   0:? "├──"
KS 405 REM STARTING INCREMENTS
IY 410 ST=1:POSITION 15,20:? ST
QY 415 SE=2:POSITION 25,20:? SE
AI 420 OP=1:POSITION 35,20:? OP
ZT 425 RETURN
QV 430 REM
RO 435 REM ───┤ DL DATA ├──────────
QX 440 REM
OE 445 DATA 4,4,4,4,4,4,4,4,130
UD 450 DATA 132,132,132,132,132,132,132,1
   32,132
RI 455 DATA 130,4,4,4,4,4
OI 460 DATA 10,10,10,10,10,10,10,10,10
RT 465 DATA 0,0,0,0,0,0,0,0,0
DP 470 DATA 10,10,10,10,10,10
KL 475 DATA 104,173,48,2,133,203,173
TF 480 DATA 49,2,133,204,160,3,177
ZV 485 DATA 203,9,128,145,203,160,6
NT 490 DATA 169,130,145,203,200,192,29
AZ 495 DATA 208,249,169,129,141,0,2
KY 500 DATA 169,6,141,1,2,160,99
CN 505 DATA 162,6,169,7,133,205,76
CG 510 DATA 92,228,162,64,165,205,240
PF 515 DATA 18,173,24,6,141,197,2
UN 520 DATA 173,0,6,141,198,2,169
II 525 DATA 1,133,206,162,192,142,14
TL 530 DATA 212,76,98,228,72,138,72
YX 535 DATA 166,206,189,24,6,141,10
RX 540 DATA 212,141,23,208,189,0,6
EC 545 DATA 141,24,208,230,206,104,170
ME 550 DATA 104,64,166,206,189,24,6
BG 555 DATA 141,10,212,141,23,208,189
AI 560 DATA 0,6,141,24,208,230,206,104
LN 565 DATA 170,104,64
```

Listing 2 - Joystick controlled sound generator

to change the increment. For example, set the pitch increment to 5 or 10 and you can zip right through the pitch values. In fact, the effect is similar to inserting a loop in a sound statement. The idea seemed good, so I ended up doing the same for tone and volume.

You'll notice that I assigned 25 and 10 as top limits for the pitch and volume increments (see lines 280 and 290). This was an arbitrary decision - feel free to change them. In fact, if you're a fairly new programmer (like me), I urge you to experiment with the program, it's the best way to learn.

GET SOME IDEAS

Don't toss out your old computer magazines - they're an extremely valuable resource. You'll not only find something new every time you look through them, you'll also discover lots of opportunity for creative tinkering. My version of "Sound Stick" is now totally different from the original, and it all started with one little "improvement." There are lots more old programs out there just waiting for a fresh coat of paint.

INVADERS

Steve Lakey's Font and Display Editor is now used to create a fully playable game which can be played even if you are not interested in the programming side of things

This issue we have an example of developing font and display subroutines, produced by the FONT AND DISPLAY DATA CREATOR, into a game.

MACHINE CODE ROUTINES

There are three machine-code routines used by the program that you may find very useful for games programming:-

ROUTINE 1- A sprite mover handling all animation, movement (including joystick control) and collision detection.

ROUTINE 2- A missile mover including optional trigger sensing, movement and collision detection.

ROUTINE 3- A sound effect routine, allowing up to four table-driven sound effects to be played independently from everything else (they do not slow the program down).

These are quite complicated to use, so I have written a smaller game that explains the routines much better, and this will be the final listing next issue.

HOW TO PLAY INVADERS

After the rather lengthy initialising has finished you will be presented with a title screen, then to start press the joystick trigger. After the siren has sounded the main display will appear and your spaceship will emerge from its hanger.

The idea is to protect the planet's shield from invading alien forces by blasting them with your laser. Every time you let them hit the shield a bit of it disappears allowing further alien forces to get through. The shield also weakens when the aliens reach the surface. An alien saucer occasionally crosses the top of the display and although killing it is difficult, it can be done.

Should the shield become too unstable you will lose a life. Although you may be lucky, a collision with an alien or its explosion will kill you. You start the game with one life and get an extra life every 20000 points. You lose points when the shield weakens and should the points drop below a 20000 point boundary, you will lose that extra life. If you lose a life the level has to be replayed.

There are five types of alien, each with its own movement pattern. A new alien appears on each of the first five levels.

THE LISTING

Invaders is another mammoth listing that would take up five pages in the magazine so we have decided to include the program only on this issue's disk where you will find it ready to run. We regret that a cassette version will not be available but we are quite happy to send a photocopy of the full listing, with TYPO codes, for anyone to type in if they wish. Send a large stamped addressed envelope to PAGE 6, P.O. Box 54, Stafford, ST16 1DR and ask for the INVADERS listing.

SCORING

50 x LEVEL	Shooting An Alien
-50 x LEVEL	An Alien Hitting The Shield Or Reaching The Surface
125 Points	For Every Shield Section Left Intact At The End Of Each Level
2000 Points	Hitting The Saucer

TECHNIQUES USED

To animate the billboard a selection of different characters were plotted to the screen, whilst to open and close the hanger, data was stored directly into the character set. Study the listing to see exactly how it was done.

In the final part of this article, to be presented next issue, there will be one more listing which will explain the machine-code routines mentioned above. These are total relocatable and operate in the vertical blank interval making animation very smooth. If you have ever wanted to program your own commercial quality games look out for it!

WHAT 'AVE WE'ERE?

The Atari Classic is alive and well in France where Patrice Robert has discovered alternative software titles

You may think, as many people do, that as the 8-bit is a relatively old produced computer, you are alone and without any help. Mistake! Just take a look at the people involved in this magazine from all around the world. Look at the British, German, Australian, US teams and support clubs around the world for our machine. You may think that I only look around the world because I write from FRANCE where you never heard about any 8-bit machines. False!

Here, in France, the 400 appeared in the beginning of the 80s' and was followed by further models of the XL/XE line several years later. There were also many magazines and publications supporting the ATARI 8-bit machines in my country. First, there was "L'ATARIEN" which began publication in October 1983 (mostly with VCS 2600 dedicated articles for the first three issues) and finished in February 1986 after 10 issues. This was a magazine edited by ATARI FRANCE and was of good quality with articles, programs and reviews of games and utilities. Then there was "POKEY" from July 1986 to August 1987 with full coloured pages all about the ATARI 8-bit machines, offering bargains on software and hardware. These magazines were very well produced with good programs and original articles, but were difficult to find even here in France. Unfortunately, their publication stopped due to lack of buyers and supporters. There was also was a much bigger publication called "TILT" (much the same as the English Computer and Video Game mag) which followed the 8-bit until 1986. This mag still lives but with articles on ST, PC, and Amiga.

However, there is here a group of people continuing the support for the XL/XE (some of them via the French telecom computer system called MINITEL) who think that the Atari is still the best computer. To convince people that they are owning the very best computer I have just one question. What other computer has more than 4,000 programs including big games like PAC-MAN, DONKEY KONG, GALAXIAN, VANGUARD, MISSILE COMMAND, POLE POSITION, PENGO, JOUST, CENTIPEDE and so on plus software for the more serious users all with great music and 256 colours, a light gun, cartridges, tapes, disks, touch tablet, light pencil, laboratory interface and hardware enhancement?

HARD TO FIND SOFTWARE, RUMOURS AND CONVERSIONS

I must say that I have a rather good experience in gaming on the Atari 8-bit computers (after 10 years of joystick manipulation) as I have tried hundreds of programs for our little machines but I am always searching for some big titles that I have only heard about.

Have you ever seen a big hit on other machines wishing it could be available on the XL/XE? I have, as every player probably has in the computer world. Have you ever been told about great titles on the Atari 8-bit that you never saw? I also have and, occasionally, I have seen some of them. To help you get more enjoyment and ease the desperation in searching for the obscure titles, I will share my own experience on the long, hard road of finding software for the XL/XE.

First, a game I have always been looking for is **PHOENIX** but it didn't appear for our computer whereas it did on the VCS 2600 and the 5200. ATARI could have done a XL version! If you are waiting for a similar game, have a look at **DEMON ATTACK** from Imagic or **SATAN'S HOLLOW** from CBS.

Another great hopeless search is about **GALAGA** which doesn't exist either on the 8-bit line, whereas it does on the 7800 video game system (I suggest that you look out for an article on the 7800 and its games I am working on). The nearest adaptation of this game would be **GALAXIAN**, **A.E** or **GALACTIC CHASE** from respectively Atari, Broderbund and Prism, but you will have a nice surprise if you dare have a look at **BANDITS** (1982) from Sirius which is fast (not as fast as A.E), very well coloured and varied.

On the car racing game side, I have always appreciated **ENDURO** on the VCS 2600 which doesn't have the same feeling of driving as **ROAD RACE**, both from Activision, although this last one is a very good one for the XL. In another type of action, I really enjoyed **YAR'S REVENGE** and **SORCERER'S APPRENTICE** also on the VCS (the way the fun started with me) which has a very original concept, as has **ACTION FORCE** from Parker, but I never saw an adaptation of these games on the 8-bit.

On the opposite side, there were great titles which were supposed to exist on the 'Atari classic' as it is now called but which seem to have never been released. I speak of titles such as **LITTLE COMPUTER PEOPLE** from Activision, **SKYFOX** from Electronic Arts, **SUMMER GAMES 2** and **WINTER GAMES** from Epyx. I saw an advertisement in 1986 about LCP and SG2 in TILT (magazine mentioned above) being sold by a French shop called 'ELECTRON' at a really high price (350 frs - £35) but never saw them. All I know about LCP is

that I have a demo version of the game but without any computer people in the house. I also saw a picture of Winter games working with a 65XE at the '87 London Atari show reviewed in the POKEY magazine of that year. Has anybody heard of these games or seen them running on the XL?

There's also those big hit cartridges that were supposed to be produced for our machine. I talk of **COMMANDO** (for that title refer to the price list that I got at the '88 French Atari show on which COMMANDO was even referred to under the RX 8094 reference), **MEAN 18**, **XENOPHOBE**, **MIDI MAZE** and **TOWER TOPPLER** about which I saw pictures and comments on an American review called 'THE ATARIAN' in 1989 (Vol. 1 no.2) but never played with. Those searching MIDI MAZE could have a glance at **WAY OUT** from Sirius which was produced in 1982 and has a similar scenario.

At this point of the discussion, I have been surprised by a typical fact in our 8-bit world, which is that some titles like **ALIEN BRIGADE**, **POLE POSITION II**, **COMMANDO**, **IKARI WARRIORS** and **NINJA GOLF** are available for the 7800 but not the XL/XE when this video game system has very similar graphic modes and sound capabilities to the XL/XE line! There is no reason why Atari could not have produced these games for the Atari Classic.

DON'T GIVE UP ... MOST OF WHAT YOU WANT REALLY DOES EXIST !!!

Some of my friends have dropped their XL/XE just because they couldn't have big hits, but they didn't search enough and were badly informed. I realised that after having discovered that big games were sometimes adapted on the XL with another name, The resulting discoveries were well worthwhile. Let's take examples. I wanted **MARBLE MADNESS** on the XL and found it under the name of **FIDGET** from Americana software. **TARZAN** also exists on the XL/XE from Coleco and has everything comparing to the Coleco cartridge of 1984. I also got **CROSSBOW** at B & C Computervision in the US after a good search but it was worth it, believe me!

If, like me, you have been searching for some old hits adapted from the VCS to the XL, you could find **DODGE'EM**, a car racing game where you must avoid other cars in a labyrinth converted as **DODGE RACER** on our 8-bit machine from Synapse in 1981. **CARNIVAL**, the big arcade hit from Coleco, is also available for Atari XL under the name of **SHOOTING ARCADE** from Datasoft in 1982, with the same moving shooting targets and the ending level bear going left and right. **AMIDAR** from Parker has also been adapted to XL by Funsoft in 1982 under the **TIME RUNNER** title, with those squares to go round in order to fill them with colour while avoiding enemies. The last example of this kind of adaptation from the veteran game system is **STAMPEDE** from Activision which is called **ROUND UP** on our computer, with the similar running horses at different speeds and the cowboy with his lasso.

Patrice Robert
with
The French Connection

MISINFORMATION CAUSES PROBLEMS!

On the opposite side, there is sometimes disappointment with the name of some games. For example, when I got the game called **TIME BANDIT**, I thought it was the Microdeal one initially developed for the ST, but discovered instead a Scramble type game (which is, nevertheless, a very good adaptation).

A typical example of misinformation is also due to the lack of distribution of our software. Some people don't even know that **VANGUARD**, **KANGAROO**, **BERZERK**, **STARGATE**, **SPACE DUNGEON** and **GREMLINS** from Atari were available on our machine and all of top quality. We have to admit that there hasn't been a lot of effort from some software houses on this point. For example, a lot of people would have enjoyed playing a two player racing game like **HIGHWAY DUEL** (Dynamics Marketing GMBH, 1984) which divides the screen in two parts and allows each car to be controlled independently through the town where you must follow the road direction, avoid other cars and respect the traffic lights along the horizontal scrolling. If only it had been well distributed! (I got the XL version of this game from Germany).

It has been the same difficult way with getting **SCHREKENSTEIN** (1986) from Axis/Ariolasoft this time, which offers a large scrolling playfield in a castle with ghosts, spiders and magnificent sampled sound effects. This is a really top quality game for the XL/XE. I am not surprised by the quality level of the games produced by the German Ke-Soft house. And **SPELUNKER!** Did you play this game? If you already have, you haven't forgotten this formidable cavern type game Micro League Image released in 1983 with the moving elevator introducing the miner into this huge multi-directional scrolling playfield filled with dozens of different aliens. And did you ever heard of **IXION** (1985) from Wastedwares where you have a moving ball trying to collect letters and shooting other enemy balls?

PAC-MAN AS AN EXAMPLE OF MISINFORMATION

Most of you know, or think you know, the PAC-MAN games (I mean the real ones, not adaptations made by another house than Atari) and would speak not only of the classical **PAC-MAN** but also of **MS PAC-MAN**, **PAC-MAN JUNIOR** and **SUPER PAC-MAN**. However, there have been two versions of the classic PAC-MAN from Atari. The first one appeared on cartridge, allowing the player to select the starting level and the number of players. Always in this version, the pac-man mouth movement is very fast and the sound made when the glutton eats a super pill is like digitalized. On higher levels (keys), these super pills have no more effect on ghosts. The second version appeared on disk but the game has a better presentation with the introduction of the four ghosts and their names but most important is the animation scenes between levels, as in MS PAC-MAN. This version, however, doesn't give the possibility to select the starting level of the game at high levels, the super pills still have power every 3 or 4 levels. These differences are due to the memory size of the selected versions.

It is the same problem (is it?) with **MONTEZUMA'S RE-**

continued

WHAT 'AVE WE 'ERE?

continued ...

VENGE or **ZAXXON** which appeared in a 16k or 32k version (and even in 48k for Zaxxon). Speaking about 'MONTY' makes me wonder if anybody has ever seen the second episode of this game on XL which was supposed to be **BARBADOS BOOTY** or what should have been the next adventure of B.C's QUEST known under the name of **B.C. CROG REVENGE** (I never saw either of them).

ADVENTURE'S ATTRACTION

On the adventure game side, I find most are forbidding (unless you appreciate text adventures), so I was not attracted by those kind of games until I played with **MASK OF THE SUN** and **SERPENT'S STAR** from Broderbund or with **MINDSHADOW** from Activision. All these include graphic animation and sound effects, which give interactivity to these type of games. Well, the differences would be apparent when comparing a game like **ZORK** with **THE NEVERENDING STORY** from Datasoft. Both are worth interest, but I didn't know when beginning on the 8-bit that those types of adventures existed on the Atari. That's why I would criticise those software publishers who discounted such a big computer as the Atari 8-bit just by ignorance or lack of information about software.

I have learned one thing about my computer which is that when I am searching for specific software I have to ask and collect all the information before giving in, but I have had a lot of good surprises!

MAKE A SOFTWARE WISH !

There is a piece of software I would like to see on the XL/XE which I once saw on a Macintosh. It is a software speech synthesizer with a head on the screen who moves his mouth and eyes at every word pronounced. I would compare it to a combination of MOVIE MAKER and S.A.M (Software Automatic Mouth).

Well, you may think I am crazy to quote such a game that I would like to see on my computer screen, but after having ordered and seen the BIG DEMO from PAGE 6, I have thought that anything (almost) could be possible! Programmers, it's up to you! Make us a speaking and moving head, even if it's a demo. Give it just a try as I do!

Well I hope that you have enjoyed reading of my experiences in discovering an almost unknown world of software for our Atari. Perhaps, one day, I can read about your experiences?

If somebody is interested in a project such as the talking head or wants to speak to the French Atari 8-bit lover, you can contact me or write to:

Patrice ROBERT (Robert being my family name), **7 Bd Marcel Pourtout, 92500 Rueil Malmaison, FRANCE**

XL/XE UTILITY

NUMCON

A no frills number conversion utility by Paul Saunders that almost everyone will find a use for

Many years ago when I was at school, we used to have to convert a lot of numbers from different bases and do simple arithmetic with them. After a while I wrote a program to do the conversion leaving just the arithmetic to cope with.

NUMCON will convert to and from decimal to any base up to 16 and I have expanded it to cope with many other conversions. It will now also do area, weight, volume and temperature conversions making it, I hope, a useful utility to have.

The program is written entirely in Basic and uses a no frills graphics 0 screen throughout. It is menu driven and is simple to use.

CONVERSIONS INCLUDED

NUMBERS

DECIMAL TO BINARY
BINARY TO DECIMAL
BASE (3-16) TO DECIMAL
DECIMAL TO BASE (3-16)

TEMPERATURE

CELSIUS TO FAHRENHEIT
FAHRENHEIT TO CELSIUS
CELSIUS TO KELVIN
KELVIN TO CELSIUS

VOLUME

LITRE TO GALLON
GALLON TO LITRE
PINT TO MILLILITRE
MILLILITRE TO PINT

WEIGHT

TON TO TONNE
TONNE TO TON
KILOGRAM TO POUND
POUND TO KILOGRAM
OUNCE TO GRAM
GRAM TO OUNCE
GRAM TO POUND
POUND TO GRAM

LENGTH

MILE TO KILOMETRE
KILOMETRE TO MILE
YARD TO METRE
METRE TO YARD
MILLIMETRE TO INCH
INCH TO MILLIMETRE

NUMCON

```
EI 1 REM ******************************
JJ 2 REM *           NUMCON            *
RQ 3 REM *             by              *
DU 4 REM *        Paul Saunders        *
EC 5 REM * --------------------------- *
JE 6 REM * NEW ATARI USER  - FEB 1993  *
EO 7 REM ******************************
NN 8 REM
BT 15 GRAPHICS 0:POKE 752,1
AF 20 DIM C$(255),Z$(255),D$(255),T$(255)
   ,A$(255),X$(1)
UP 30 PRINT "↰↓↓↓↓↓↓↓↓↓↓↓               CONVER
   SION PROGRAM"
UI 40 PRINT "                  ____________
   _"
YA 50 PRINT "                  BY PAUL SAUNDERS
   "
DY 60 PRINT "                   ____________
   "
PA 70 REM *** DELAY ***
TA 80 FOR DELAY=1 TO 1000:NEXT DELAY
XA 90 REM *** MENU ***
NZ 100 PRINT "↰                  M E N U"
DG 110 PRINT "↓↓1)   NUMBER CONVERSIONS"
GX 120 PRINT "↓2)   WEIGHT CONVERSIONS"
CE 130 PRINT "↓3)   TEMPERATURE CONVERSIO
   NS"
TG 140 PRINT "↓4)   VOLUME CONVERSIONS"
WT 150 PRINT "↓5)   AREA CONVERSIONS"
EZ 160 PRINT "↓6)   LENGTH CONVERSIONS"
XV 165 PRINT "↓7)   QUIT"
UZ 170 PRINT "↓INPUT YOUR CHOICE ";
RJ 180 INPUT CH
OW 190 IF (CH<1) OR (CH>7) THEN 100
PT 195 IF CH=7 THEN END
QU 200 ON CH GOSUB 210,710,1470,1910,2320
   ,2550
LW 205 GOTO 100
ET 210 REM *** NUMBER CONVERSIONS MENU **
   *
OM 220 PRINT "↰          NUMBER CONVERSION
    MENU"
GK 230 PRINT "↓↓1)   DECIMAL TO BINARY"
GV 240 PRINT "↓2)   BINARY TO DECIMAL"
VY 250 PRINT "↓3)   BASE (3-16) TO DECIMA
   L"
FO 255 PRINT "↓4)   DECIMAL TO BASE(3-16)
   "
OK 256 PRINT "↓5)   RETURN TO MAIN MENU"
UY 260 PRINT "↓INPUT YOUR CHOICE ";
RI 270 INPUT CH
CO 275 IF CH=5 THEN RETURN
RH 276 IF (CH<1) OR (CH>5) THEN 220
RN 280 ON CH GOSUB 290,500,3190,3500
NS 285 GOTO 220
RS 290 REM *** DECIMAL TO BINARY ***
OI 295 PRINT "↰             DECIMAL TO BIANR
   Y"
FZ 300 PRINT "↓INPUT DECIMAL ";
LQ 305 D$="":T$=""
IV 310 INPUT A
UJ 320 IF ((A/2)<>INT(A/2)) THEN C$="1"
RA 330 IF ((A/2)=INT(A/2)) THEN C$="0"
JJ 340 T$(LEN(T$)+1)=C$
TM 350 A=INT(A/2)
NX 360 IF A=1 OR A=0 THEN 380
NM 370 GOTO 320
TM 380 IF A=1 THEN C$="1"
SJ 390 IF A=0 THEN C$="0"
JC 400 T$(LEN(T$)+1)=C$
TR 410 L=LEN(T$)
BY 420 FOR I=1 TO L
BP 430 Z$=T$(L-I+1,L-I+1)
PT 440 D$(LEN(D$)+1)=Z$
GE 450 NEXT I
UB 460 PRINT "↓BINARY=";D$
SM 470 PRINT "↓PRESS RETURN TO CONTINUE "
   ;
AA 480 INPUT A$
AF 485 RETURN
HU 490 REM *** BINARY TO DECIMAL ***
CR 500 PRINT "↰             BINARY TO DECIMA
   L"
DE 510 PRINT "↓INPUT BINARY NUMBER ";
HQ 520 INPUT T$
HH 530 Q=1
HR 540 T=0
UA 550 L=LEN(T$)
PX 560 GOTO 650
CJ 570 FOR I=1 TO L
CA 580 Z$=T$(L-I+1,L-I+1)
BP 590 IF Z$="1" THEN T=T+Q
TY 600 Q=Q*2
FY 610 NEXT I
RT 620 PRINT "↓DECIMAL=";T
SG 630 PRINT "↓PRESS RETURN TO CONTINUE "
   ;
AH 635 INPUT A$
ZK 640 RETURN
CG 650 FOR I=1 TO L
BX 660 Z$=T$(L-I+1,L-I+1)
MM 670 IF Z$="0" OR Z$="1" THEN 690
AG 680 PRINT "↓BINARY IS A STRING OF 1'S
   AND 0'S"
OP 685 GOTO 510
GO 690 NEXT I
PZ 700 GOTO 570
FQ 710 REM *** WEIGHT CONVERSIONS ***
AJ 720 PRINT "↰             WEIGHT CONVERSIO
   N MENU"
UJ 730 PRINT "↓↓1)   TON TO TONNE"
NM 740 PRINT "↓2)   TONNE TO TON"
VL 750 PRINT "↓3)   KILOGRAM TO POUND"
WV 760 PRINT "↓4)   POUND TO KILOGRAM"
UQ 770 PRINT "↓5)   OUNCE TO GRAM"
AR 780 PRINT "↓6)   GRAM TO OUNCE"
OR 790 PRINT "↓7)   GRAM TO POUND"
FJ 800 PRINT "↓8)   POUND TO GRAM"
QD 805 PRINT "↓9)   RETURN TO MAIN MENU"
KT 810 PRINT "↓ INPUT YOUR CHOICE ";
RE 820 INPUT CH
ZV 822 IF (CH<1) OR (CH>9) THEN 720
EC 825 IF CH=9 THEN RETURN
XN 830 ON CH GOSUB 840,920,1000,1080,1160
   ,1240,1320,1400
PM 835 GOTO 720
DC 840 REM *** TON TO TONNE ***
QH 850 PRINT "↰                  TON TO TONN
   E"
JT 860 PRINT "↓INPUT TONS ";
QR 870 INPUT R
HU 880 TE=R*0.984207
ST 890 PRINT "↓TONNES=";TE
SD 900 PRINT "↓PRESS RETURN TO CONTINUE "
   ;
AE 905 INPUT A$
ZH 910 RETURN
ZK 920 REM *** TONNE TO TON ***
JM 930 PRINT "↰                  TONNE TO TON"
WR 940 PRINT "↓INPUT TONNES ";
XG 950 INPUT TE
TK 960 R=TE*1.01605
EN 970 PRINT "↓TON'S=";R
ST 980 PRINT "↓PRESS RETURN TO CONTINUE "
   ;
AU 985 INPUT A$
ZX 990 RETURN
MQ 1000 REM *** KILOGRAM TO POUND ***
QH 1010 PRINT "↰          KILOGRAM TO POUND
   "
OL 1020 PRINT "↓INPUT KILOGRAMS ";
PJ 1030 INPUT K
RT 1040 PO=K*0.453592
EZ 1050 PRINT "↓POUNDS=";PO
OD 1060 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DW 1065 INPUT A$
AU 1070 RETURN
OJ 1080 REM *** POUND TO KILOGRAM ***
BQ 1090 PRINT "↰               POUNDS TO KIL
   OGRAMS"
ND 1100 PRINT "↓INPUT POUNDS ";
FA 1110 INPUT PO
DZ 1120 K=PO*2.20462
WQ 1130 PRINT "↓KILOGRAMS=";K
NZ 1140 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DS 1145 INPUT A$
AQ 1150 RETURN
OV 1160 REM *** OUNCE TO GRAM ***
HJ 1170 PRINT "↰                OUNCES TO GRA
   MS"
DK 1180 PRINT "↓INPUT OUNCES ";
```

continued

NUMCON

```
IM 1190 INPUT OU
WK 1200 GR=OU*3.5274E-03
ZI 1210 PRINT "↓GRAMS=";GR
NV 1220 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DO 1225 INPUT A$
AM 1230 RETURN
UD 1240 REM *** GRAM TO OUNCE ***
IZ 1250 PRINT "K              GRAMS TO OUN
   CES"
YV 1260 PRINT "↓INPUT GRAMS ";
DD 1270 INPUT GR
GT 1280 OU=GR*28.3495
CJ 1290 PRINT "↓OUNCES=";OU
NR 1300 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DK 1305 INPUT A$
AI 1310 RETURN
FO 1320 REM *** GRAM TO POUND ***
YW 1330 PRINT "K               GRAMS TO PO
   UNDS"
YR 1340 PRINT "↓INPUT GRAMS ";
CZ 1350 INPUT GR
CZ 1360 PO=GR*453.592
FL 1370 PRINT "↓POUNDS=";PO
OP 1380 PRINT "↓PRESS RETURN TO CONTINUE
   ";
EI 1385 INPUT A$
BG 1390 RETURN
WN 1400 REM *** POUNDS TO GRAMS ***
RC 1410 PRINT "K               POUNDS TO GR
   AMS"
NP 1420 PRINT "↓INPUT POUNDS ";
GD 1425 INPUT PO
AH 1430 GR=PO*2.205E-03
ZV 1440 PRINT "↓GRAMS=";GR
OI 1450 PRINT "↓PRESS RETURN TO CONTINUE
   ";
EB 1455 INPUT A$
AZ 1460 RETURN
VM 1470 REM *** TEMPERATURE CONVERSIONS *
   **
GI 1480 PRINT "K      TEMPERATURE CONVERS
   ION MENU"
BI 1490 PRINT "↓↓1)   CELCIUS TO FARENHEI
   GHT"
PM 1500 PRINT "↓2)   FARENHEIGHT TO CELCI
   US"
VC 1510 PRINT "↓3)   CELCIUS TO KELVIN"
TR 1520 PRINT "↓4)   KELVIN TO CELCIUS"
YK 1525 PRINT "↓5)   RETURN TO MAIN MENU"
WR 1530 PRINT "↓INPUT YOUR CHOICE ";
WV 1535 INPUT CH
IS 1536 IF CH=5 THEN RETURN
FJ 1537 IF (CH<1 OR (CH>5) THEN 1480
ZZ 1540 ON CH GOSUB 1550,1660,1750,1830
UA 1545 GOTO 1480
UH 1550 REM *** CELCIUS TO FARENHEIGHT **
   *
ZU 1560 PRINT "K          CELCIUS TO FARENH
   EIGHT"
VE 1570 PRINT "↓INPUT CELCIUS ";
VD 1580 INPUT CE
MO 1590 V=9/5
BV 1600 X=V*CE
NI 1610 FA=X+32
RY 1620 PRINT "↓FARENHEIGHT=";FA
OG 1630 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DZ 1635 INPUT A$
AX 1640 RETURN
OS 1650 REM *** FARENHEIGHT TO CELCIUS **
   *
LJ 1660 PRINT "K        FARENHEIGHT TO CEL
   CIUS"
QA 1670 PRINT "↓INPUT FARENHEIGHT ";
UP 1680 INPUT FA
NQ 1690 Y=5/9
LM 1700 V=FA-32
FB 1710 CE=Y*U
MH 1720 PRINT "↓CELCIUS=";CE
OI 1730 PRINT "↓PRESS RETURN TO CONTINUE
   ";
EB 1735 INPUT A$
AZ 1740 RETURN
KV 1750 REM *** CELCIUS TO KELVIN ***
FS 1760 PRINT "K             CELCIUS TO KELV
   IN"
VI 1770 PRINT "↓INPUT CELCIUS ";
VH 1780 INPUT CE
LB 1790 K=CE+273
WS 1800 PRINT "↓KELVIN=";K
OE 1810 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DX 1815 INPUT A$
AV 1820 RETURN
IP 1830 REM *** KELVIN TO CELCIUS ***
DM 1840 PRINT "K             KELVIN TO CELCI
   US"
BP 1850 PRINT "↓INPUT KELVIN ";
QI 1860 INPUT K
MF 1870 CE=K-273
NQ 1880 PRINT "↓CELCIUS=";CE
PC 1890 PRINT "↓PRESS RETURN TO CONTINUE
   ";
EV 1895 INPUT A$
AR 1900 RETURN
TJ 1910 REM *** VOLUME CONVERSIONS ***
WD 1920 PRINT "K       VOLUME CONVERSION M
   ENU"
NS 1930 PRINT "↓↓1)   LITRE TO GALLON"
EB 1940 PRINT "↓2)   GALLON TO LITRE"
UU 1950 PRINT "↓3)   PINT TO MILLILITRE"
JX 1960 PRINT "↓4)   MILLILITRE TO PINT"
ZE 1965 PRINT "↓5)   RETURN TO MAIN MENU"
XL 1970 PRINT "↓INPUT YOUR CHOICE ";
WY 1980 INPUT CH
EM 1985 IF (CH<1 OR (CH>5) THEN 1920
JP 1986 IF CH=5 THEN RETURN
LW 1990 ON CH GOSUB 2010,2090,2170,2250
UF 1995 GOTO 1920
JD 2000 REM *** LITRE TO GALLON ***
AP 2010 PRINT "K               LITRES TO GA
   LLONS"
JA 2020 PRINT "↓INPUT LITRES ";
AJ 2030 INPUT LI
QP 2040 GAL=LI*4.54609
PI 2050 PRINT "↓GALLONS=";GAL
OE 2060 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DX 2065 INPUT A$
AV 2070 RETURN
ML 2080 REM *** GALLON TO LITRE ***
BJ 2090 PRINT "K               GALLONS TO LIT
   RES"
AS 2100 PRINT "↓INPUT GALLONS ";
IV 2110 INPUT GAL
CE 2120 LI=GAL*0.219619
SW 2130 PRINT "↓LITRES=";LI
OA 2140 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DT 2145 INPUT A$
AR 2150 RETURN
VO 2160 REM *** PINT TO MILLILITRE ***
WD 2170 PRINT "K             PINTS TO MILLILI
   TRES"
PW 2180 PRINT "↓INPUT PINTS ";
KZ 2190 INPUT PY
UI 2200 ML=PY*1.76E-03
MR 2225 PRINT "↓MILLILITRES=";ML
NZ 2230 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DK 2233 INPUT A$
BH 2235 RETURN
JW 2240 REM *** MILLILITRE TO PINT ***
NY 2250 PRINT "K               MILLITRES TO P
   INTS"
AL 2260 PRINT "↓INPUT MILLITRES ";
CY 2270 INPUT ML
EU 2280 PY=ML*568.261
AI 2290 PRINT "↓PINTS=";PY
NS 2300 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DL 2305 INPUT A$
AJ 2310 RETURN
PV 2320 REM *** AREA CONVERSIONS ***
RX 2330 PRINT "K             AREA CONVERSION
   S MENU"
JR 2340 PRINT "↓↓1) ACRE TO HECTARE"
RE 2350 PRINT "↓2) HECTARE TO ACRE"
ES 2355 PRINT "↓3) RETURN TO MAIN MENU"
AM 2360 PRINT "↓INPUT CHOICE ";
XB 2365 INPUT CH
```

NUMCON

```
XL 2367 IF (CH<1) OR (CH>3) THEN 2330
II 2368 IF CH=3 THEN RETURN
WR 2370 ON CH GOSUB 2390,2460
RS 2375 GOTO 2330
JV 2380 REM *** AREA TO HECTARE ***
OR 2390 PRINT "↖            ACRE TO HECTAR
   E"
OX 2400 PRINT "↓INPUT ACRES ";
SJ 2410 INPUT AC
DG 2420 HEC=AC*2.47106
ZD 2430 PRINT "↓HECTARES=";HEC
OG 2440 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DZ 2445 INPUT A$
AX 2450 RETURN
BG 2460 REM *** HECTARE TO ACRE ***
DW 2470 PRINT "↖           HECTARES TO ACRE
   S"
VG 2480 PRINT "↓INPUT HECTARES ";
HP 2490 INPUT HEC
WG 2500 AC=HEC*0.404686
AP 2510 PRINT "↓ACRES=";AC
OC 2520 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DV 2525 INPUT A$
AT 2530 RETURN
HK 2540 REM *** LENGTH CONVERSIONS ***
BQ 2550 PRINT "↖            LENGTH CONVER
   SION MENU"
UB 2560 PRINT "↓↓1)   MILE TO KILOMETRE"
IY 2570 PRINT "↓2)   KILOMETRE TO MILE"
DG 2580 PRINT "↓3)   YARD TO METRE"
AQ 2590 PRINT "↓4)   METRE TO YARD"
YW 2600 PRINT "↓5)   MILLIMETRE TO INCH"
XP 2610 PRINT "↓6)   INCH TO MILLIMETRE"
YV 2620 PRINT "↓7)   RETURN TO MAIN MENU"
BA 2625 PRINT "↓INPUT CHOICE ";
WE 2630 INPUT CH
FO 2635 IF (CH<1) OR (CH>7) THEN 2550
JX 2637 IF CH=7 THEN RETURN
XX 2640 ON CH GOSUB 2650,2730,2810,2890,2
   970,3060
TN 2645 GOTO 2550
RJ 2650 REM *** MILE TO KILOMETRE ***
ER 2660 PRINT "↖         MILES TO KILOMETRE
   S"
YW 2670 PRINT "↓INPUT MILES ";
ZJ 2680 INPUT MD
WK 2690 KM=MD*1.60934
HK 2700 PRINT "↓KILOMETRES=";KM
OD 2710 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DW 2715 INPUT A$
AU 2720 RETURN
XK 2730 REM *** KILOMETRE TO MILE ***
RH 2740 PRINT "↖            KILOMETRES TO MI
   LES"
KX 2750 PRINT "↓INPUT KILOMETRES ";
CU 2760 INPUT KM
ES 2770 MD=KM*0.621371
SV 2780 PRINT "↓MILES=";MD
PB 2790 PRINT "↓PRESS RETURN TO CONTINUE
   ";
EU 2795 INPUT A$
AQ 2800 RETURN
BK 2805 RETURN
CW 2810 REM *** YARD TO METRE ***
XV 2820 PRINT "↖                YARDS TO MET
   RES"
FN 2830 PRINT "↓INPUT YARDS ";
EP 2840 INPUT YD
AF 2850 MR=YD*1.09361
BE 2860 PRINT "↓METRES=";MR
OX 2870 PRINT "↓PRESS RETURN TO CONTINUE
   ";
EQ 2875 INPUT A$
BO 2880 RETURN
BD 2890 REM *** METRES TO YARDS ***
XH 2900 PRINT "↖               METRES TO YAR
   DS"
HD 2910 PRINT "↓INPUT METRES ";
FX 2920 INPUT MR
RL 2930 YD=MR*0.9144
HO 2940 PRINT "↓YARDS=";YD
OT 2950 PRINT "↓PRESS RETURN TO CONTINUE
   ";
EM 2955 INPUT A$
BK 2960 RETURN
EH 2970 REM *** MILLIMETRES TO INCHES ***
TW 2980 PRINT "↖        MILLIMETRES TO INC
   HES"
WL 2990 PRINT "↓INPUT MILLIMETRES ";
AN 3000 INPUT MI
TY 3010 IC=MI*0.03937
UU 3020 PRINT "↓INCHES=";IC
NW 3030 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DP 3035 INPUT A$
AN 3040 RETURN
BL 3050 REM *** INCHES TO MILLIMETRES ***
QE 3060 PRINT "↖            INCHES TO MILLI
   METRES"
OD 3070 PRINT "↓INPUT INCHES ";
WP 3080 INPUT IC
VD 3090 MI=IC*25.4
FY 3100 PRINT "↓MILLIMETRES=";MI
NS 3110 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DL 3115 INPUT A$
AJ 3120 RETURN
HJ 3190 REM *** HEX TO DECIMAL ***
ZF 3195 T=0
UD 3200 PRINT "↖                 HEX TO DECIM
   AL"
YG 3205 T=0
HE 3210 PRINT "↓INPUT BASE (3-16) ";
YZ 3215 INPUT BASE
TU 3217 PRINT "↓BASE ";BASE;" NUMBER ";
YE 3220 INPUT A$:B=LEN(A$)
KP 3230 FOR R=1 TO B
QJ 3240 X$=A$(B-R+1,B-R+1)
KW 3250 IF ASC(X$(1,1))>64 THEN V=ASC(X$(
   1,1))-55:GOTO 3270
SW 3260 V=VAL(X$(1,1))
ZA 3270 T=T+V*BASE^(R-1)
JO 3280 NEXT R
WK 3290 PRINT "↓DECIMAL=";T
NT 3300 PRINT "↓PRESS RETURN TO CONTINUE
   ";
DM 3305 INPUT A$
AK 3310 RETURN
DH 3313 INPUT A$
BE 3315 RETURN
RW 3500 PRINT "↖       DECIMAL TO BASE (3-
   16)"
JG 3510 PRINT "↓ INPUT BASE ";
ZF 3515 INPUT BASE
VT 3516 IF (BASE<3) OR (BASE>16) THEN 351
   0
CH 3520 PRINT "↓ INPUT DECIMAL ";
FE 3530 INPUT DEC
SM 3535 C$="":Z$=""
VM 3537 IF DEC<BASE THEN 3610
NI 3540 A=INT(DEC/BASE)
JP 3550 B=A*BASE
VU 3560 C=DEC-B
EZ 3565 IF C>=10 THEN GOSUB 3700
CO 3570 IF C<10 THEN C$(LEN(C$)+1)=STR$(C
   )
TT 3580 DEC=INT(DEC/BASE)
VE 3590 IF DEC<BASE THEN C$(LEN(C$)+1)=ST
   R$(DEC):GOTO 3620
SG 3600 GOTO 3540
WQ 3610 C=DEC:IF C>=10 THEN GOSUB 3700
DR 3615 IF C<10 THEN C$=STR$(C)
QP 3620 L=LEN(C$)
NZ 3630 FOR I=1 TO L
BK 3640 Z$(LEN(Z$)+1)=C$(L+1-I,L+1-I)
FS 3650 NEXT I
CG 3660 PRINT "↓BASE ";BASE;" =";Z$
GW 3665 PRINT "PRESS RETURN TO CONTINUE "
   ;
ES 3667 INPUT A$
BI 3670 RETURN
AL 3700 IF C=10 THEN C$(LEN(C$)+1)="A"
CI 3710 IF C=11 THEN C$(LEN(C$)+1)="B"
EF 3720 IF C=12 THEN C$(LEN(C$)+1)="C"
GC 3730 IF C=13 THEN C$(LEN(C$)+1)="D"
HZ 3740 IF C=14 THEN C$(LEN(C$)+1)="E"
JW 3750 IF C=15 THEN C$(LEN(C$)+1)="F"
BH 3760 RETURN
```

PROGRAM EDITING SCREEN

David Sargeant provides a programming screen which you can customise to suit your own preferences

The main use that I have for my computer is for writing programs. The Atari's default screen of light blue text on a darker blue background can cause eye strain and after hours of looking at the screen I find that it is very easy to lose track of the cursor.

To remedy this I have written Program Editing Screen to customise the default parameters for my own particular likes and dislikes. I find that this is a very useful utility and I think that it could also be helpful to other programmers. The original program is in Assembler, but I have designed it in such a way that it can be altered to suit individual tastes through a BASIC customiser program.

PROGRAM EDITING SCREEN CUSTOMISER

When you run the PESC program a file buffer is set up which contains the entire code for the boot file. The screen then displays a list of my custom default values as shown below:

DESCRIPTION		*DEFAULT*
Device	ASCII of device name	65
Text margins	Screen range	
Left	0-39	1
Right	0-39	38
Status line	Colour range	
Text luminance	0-255	8
Screen colour	0-255	146
Border colour	0-255	146
Key repeat	0 or 1	1
Keyboard click	0=off, 1=on	1
Text screen	Colour range	
Text luminance	0-255	2
Screen colour	0-255	6
Reserved area	Must be >$1F65	
Low byte		0
High byte		32
Cursor speed	Range 0-255	16

If you accept these values, you can go straight ahead and create the autorun file. If you want to change any, move the indicator on the left hand side of the screen using the up/down cursor keys until it is pointing at the value that you want to alter. Then type the new value and press the Return key. If this value is acceptable, (i.e. <=255), the relevant byte in the file buffer is replaced. If the value is not acceptable, (i.e. >255), the relevant byte in the file buffer is unaltered and redisplayed.

The boot file is loaded between addresses $1D00 and $1F65 so the reserved area must be >$1F65 to protect this code from BASIC. I have set the reserved area to $2000 but you could set it higher to reserve extra space.

THE PES BOOT FILE

To create the 'AUTORUN.SYS' file put your boot disk in the disk drive and press the Escape key. The code stored in the buffer is then written to the boot file. Remember that an existing 'AUTORUN.SYS' file will be overwritten, so back it up first if you do not want to lose it.

Now, when you boot your system using this boot disk, you can access PES whenever you want to write, edit or just view a program.

ACCESSING PES

PES is accessed by typing in direct mode, OPEN#num,x,y,"A:" where:

num	any channel number, 1-5
x,y	not used, usually 0's
A:	= new device

To return to the normal Atari default screen type CLOSE #num.

For example:

OPEN#1,0,0,"A:" and CLOSE#1

Note that the system will probably crash when returning from DOS.

```
WO 1 REM ******************************
BL 2 REM *   PROGRAM EDITING SCREEN   *
ZD 3 REM *         CUSTOMISER         *
KS 4 REM *     by David Sargeant      *
SR 5 REM * -------------------------- *
HG 6 REM * NEW ATARI USER - FEB 1993  *
WU 7 REM ******************************
NN 8 REM
FZ 60 GOTO 10000
ET 1000 REM INITIALISE
CE 1010 DIM HEXLINE$(80),BUFFER$(6400),NU
   MBER$(3),FILENAME$(14)
KK 1020 BUFFER$(1)=" ":BUFFER$(6400)=" ":
   BUFFER$(2)=BUFFER$:FILENAME$="D:AUTORU
   N.SYS"
EN 1030 BUFFER=ADR(BUFFER$):SUM=0
IG 1040 FOR I=0 TO 27:READ A:POKE 1536+I,
   A:NEXT I
HC 1200 REM Screen
GM 1210 GRAPHICS 0:SETCOLOR 1,0,8:SETCOLO
   R 2,0,2:SETCOLOR 4,0,8
UT 1220 POKE 16,64:POKE 53774,64:POKE 752
   ,1
NH 1230 POSITION 0,0:? "
   "
YW 1240 POSITION 0,1:? "           PROGRAM
   EDITING SCREEN         "
UX 1250 POSITION 0,2:? "                CU
   STOMISER               "
SN 1260 POSITION 0,3:? "
   "
FO 1270 POSITION 0,4:? "
   "
BU 1280 POSITION 2,6:? "Reading line"
YV 1400 REM Read data - load buffer
MK 1410 TRAP 5010:FOR LINE=20010 TO 20160
    STEP 10
FE 1420 POSITION 15,6:? LINE:READ HEXLINE
   $,CHKSUM
FT 1430 FOR I=1 TO 80 STEP 2
LG 1440 HI=ASC(HEXLINE$(I,I))-48:IF HI>9
   THEN HI=HI-7
BL 1450 LO=ASC(HEXLINE$(I+1,I+1))-48:IF L
   O>9 THEN LO=LO-7
NW 1460 BYTE=HI*16+LO:POKE BUFFER+INDEX,B
   YTE
WE 1470 SUM=SUM+BYTE:IF SUM>999 THEN SUM=
   SUM-1000
ID 1480 INDEX=INDEX+1:NEXT I
HT 1490 IF SUM<>CHKSUM THEN POP :POP :GOT
   O 5020
FG 1500 SUM=0:NEXT LINE
QG 1510 FILESIZE=INDEX-14:INDEX=18
CB 1520 TRAP 40000:POSITION 2,6
EF 1600 REM Customising screen
NH 1610 ? " Device
    :"
HJ 1620 ? " Text margin    - left
    :"
HX 1630 ? "                - right
    :"
TP 1640 ? " Status line    - text luminanc
   e :"
ZY 1650 ? "                - screen colour
    :"
ZE 1660 ? "                - border colour
    :"
IJ 1670 ? " Key repeat
    :"
NE 1680 ? " Keyboard click
    :"
VU 1690 ? " Text screen    - text luminanc
   e :"
ZL 1700 ? "                - screen colour
    :"
QL 1710 ? " Reserved area - low byte
    :"
AA 1720 ? "                - high byte
    :"
TE 1730 ? " Cursor speed
    :"
GE 1740 POSITION 0,20:? "
   "
CR 1750 POSITION 4,22:? "Press  ESCAPE  t
   o create file"
NV 1760 POSITION 1,INDEX-12:? ">"
DM 1800 REM Print from buffer
AI 1810 FOR I=0 TO 12:POSITION 35,INDEX+I
   -12:? PEEK(BUFFER+INDEX+I):NEXT I
CC 1820 OPEN #1,4,0,"K:":GET #1,KEY:RETUR
   N
IP 2000 REM MOVE CURSOR
FH 2010 POSITION 1,INDEX-12:? " "
QS 2020 INDEX=INDEX+(KEY=61)-(KEY=45)
WR 2030 IF INDEX<18 THEN INDEX=30
BC 2040 IF INDEX>30 THEN INDEX=18
RR 2050 POSITION 1,INDEX-12:? ">":RETURN
RC 3000 REM GET NEW VALUE
EF 3010 NUMBER$="   ":I=1:POSITION 35,IND
   EX-12:? "   ←←←";
BH 3020 ? CHR$(KEY);:NUMBER$(I,I)=CHR$(KE
   Y):I=I+1
TV 3030 GET #1,KEY:IF KEY=155 THEN 3200
AC 3040 IF I>3 THEN 3030
QV 3050 IF  NOT (KEY>=48 AND KEY<=57) THE
   N 3030
PE 3060 GOTO 3020
DV 3200 REM Check input - update buffer
FZ 3210 NUMBER=VAL(NUMBER$)
JT 3220 IF NUMBER<=255 THEN POKE BUFFER+I
   NDEX,NUMBER:RETURN
OO 3230 POSITION 35,INDEX-12:? "   ←←←";P
   EEK(BUFFER+INDEX):RETURN
IW 4000 REM CREATE AUTORUN.SYS FILE
KW 4010 POSITION 4,22:? "  Insert destin
   ation disk   ":GET #1,KEY
TC 4020 OPEN #2,8,0,FILENAME$:X=USR(1536,
   BUFFER,FILESIZE):CLOSE #2
```

continued

```
SW 4030 POSITION 4,22:? "      Autorun fil
   e created     ":DELAY=500:RETURN
YX 5000 REM ERROR TRAP
HR 5010 POSITION 21,6:? "- Error ";PEEK(1
   95):DELAY=1000:GOTO 10070
SL 5020 POSITION 21,6:? "- Checksum error
   ":DELAY=1000:GOTO 10070
JD 10000 REM MAIN LOOP
UK 10010 GOSUB 1000:REM Initialise
KW 10020 IF KEY=27 THEN 10060
SG 10030 IF KEY=45 OR KEY=61 THEN GOSUB 2
   000:REM Move cursor
XN 10040 IF KEY>=48 AND KEY<=57 THEN GOSU
   B 3000:REM Get new value
NZ 10050 GET #1,KEY:GOTO 10020
YG 10060 GOSUB 4000:REM Create file
OK 10070 CLOSE #1:FOR TIME=1 TO DELAY:NEX
   T TIME:GRAPHICS 0:END
MZ 15000 REM FILE OUTPUT DATA
LV 15010 DATA 104,162,32,169,11,157,66,3,
   104,157,69,3,104,157,68,3
ZG 15020 DATA 104,157,73,3,104,157,72,3,3
   2,86,228,96
HR 20000 REM PERSONAL EDITING SCREEN DATA
MO 20010 DATA FFFF001D651F0000000000000000
   000000000041012608929201010206002010019
   200002221332923,474
YQ 20020 DATA 0030322F2732212D00252429342
   F32000000322F371A000000232F2C1A0000000
   040C20000304200,277
TT 20030 DATA 000002000200020002000200020
   0020002000200020002000200020002000200
   200020002000200,38
EW 20040 DATA 020002000200024100000000000
   0001D24921D4A1E461E461E461E461E4C921D6
   0A5528D001DA553,829
```

```
GB 20050 DATA 8D011DAD22028D021DAD23028D0
   31DAD30028D041DAD31028D051DADC5028D061
   DADC6028D071DAD,2
JB 20060 DATA C8028D081DADDA028D091DADDB0
   28D0A1DADF3028D0B1DAD0D1D8552AD0E1D855
   3AD0F1D8DC502AD,717
IQ 20070 DATA 101D8DC602AD111D8DC802AD121
   D8DDA02AD131D8DDB02A91B8D451DA91D8D461
   DA5588D491DA559,735
YK 20080 DATA 8D4A1DA9438D7A1D8D3002A91D8
   D7B1D8D3102A9958D0002A91E8D0102A9C08D0
   ED4A9008D7C1DA9,810
JA 20090 DATA A78D2202A91E8D2302AC191D60A
   C1A1D60AD001D8552AD011D8553AD021D8D220
   2AD031D8D2302AD,139
BE 20100 DATA 041D8D3002AD051D8D3102AD061
   D8DC502AD071D8DC602AD081D8DC802AD091D8
   DDA02AD0A1D8DDB,418
LA 20110 DATA 02AD0B1D8DF302AC191D6048AD1
   41D8D17D08D0AD4AD151D8D18D068402080B01E2
   0C91E4C5FE4EE7C,978
EQ 20120 DATA 1DAD7C1DCD181DD00DADF302490
   28DF302A9008D7C1D60A55418CD7D1DF00C8D7
   D1D20F21EAC811D,85
KP 20130 DATA 200C1FA55518CD7E1DF00C8D7E1
   D20F21EAC821D200C1F608D801DA9008D7F1D3
   8AD801DE90A9009,609
IV 20140 DATA 8D801DEE7F1D4CFB1E60A200BD7
   F1D4910991B1DE8C8E002D0F260A50C8D341FA
   50D8D351FA93385,311
CJ 20150 DATA 0CA91F850D203A1F60200000203
   A1F60A000B91A03F006C8C8C84C3C1FAD0C1D9
   91A03C8A983991A,286
OQ 20160 DATA 03C8A91D991A03AD161D8DE702A
   D171D8DE80260E002E1021D1F00000000000000
   0000000000000000,390
```

HOW IT WORKS

When PES is loaded from the boot disk, a new device is installed in the handler table which points to its vector table in the data region of the newly loaded code. It can then be accessed through BASIC's normal I/O commands which are:

OPEN

1. Default values which are replaced later are stored
2. Custom values are set
3. A new display list is set up with a status line above the normal text screen. This is used to display the position of the cursor. The display list also provides underlining on each line of the text screen to make a BASIC program listing easier to read
4. A display list interrupt is enabled to give the status line a different colour to the rest of the text screen
5. A vertical blank interrupt is enabled to cause the cursor to flash and to display the position of the cursor on the status line

PUT, GET, STATUS and SPECIAL

These commands are not needed by PES. An attempt to use one will result in an error #146 - function not implemented.

CLOSE

Default values which were stored earlier are restored.

When System Reset is pressed what usually happens is that the normal devices are reinstalled. This means that the new device is lost. To cause the new device to be reinstalled as well the first function of the new code must be to alter DOSINI to point to the new device set-up routine.

PES was written with just a basic Atari system. Hardware used: 800XL (64K, revision C BASIC, no modifications), XF551 disk drive with DOS 2.5. Software used: Textpro (DS #8 from Page 6 PD library) Text processor to write the assembly language for PES and to write this documentation, Atari Macro Assembler to compile the code for PES.

DISKBASE 1.0

Charles A Cole checks out a public domain database that proves more than a match for commercial offerings

Diskbase, a public domain release from Todd Blake written in the Action! language for speed but not requiring the cartridge to run. Diskbase's greatest asset, for my particular use, is the ability to run it from a hard drive with the SpartaDOS X cartridge because it is not a copy protected disk as are Data Perfect and Synfile+, and the ability to store your data files on a hard drive or a double-sided, double density disk! Another strong point that Diskbase has going for it is the ability to use a word processor to key in your data, and then let the Diskbase program read your word processor file into its database structure.

Throughout the life of the Atari 8-bit computer line, many individuals and companies have released database programs. I must have close to fifty different ones that have been written over the years, and I know there must be hundreds more that I don't have. Most of these programs are dedicated to one specific task, such as maintaining a disk library, name and address file, telephone directory, or some such purpose; or they have a very limited storage capacity of less than 500 records. In the realm of free-form databases, which allow the user to customise the data structure to their own needs, three stand out as the most useful. Synfile+ from Synapse software released in 1983; Data Perfect from LJK Enterprises, released in 1984; and Diskbase 1.0 by Todd Blake of St. Clair Shores, Michigan released in 1988.

What's that? You never heard of Diskbase? Probably because it is public domain, and was never sold in stores! Synfile+ and Data Perfect are still available from a few twilight sources in the States but were rather expensive when first released and are getting harder and harder to obtain. Diskbase is Public Domain.

PRIOR DATABASE EXPERIENCES

In my particular case, I began with Data Perfect which, even today, is one of the most powerful database programs ever written for the Atari 8-bit line. It is so comprehensive, in fact, that just working your way through the instruction manual is a major project in itself! Data Perfect was way ahead of its time, offering colour screens, 80 column displays, and support of double density drives when most of us were still plugging along with 400s and 800s and 810 single density disk drives. As my disk library grew and I needed greater and greater storage capacity, I switched to Synfile+ after acquiring an Atari 130XE and XF551 drive, because it used all of the 130XE's RAM for file index storage, and a single file could be split across up to 16 disks.

Both of these programs suffer from the same problem, though - they won't write to a double-sided drive! Then along came

MEMORY REQUIREMENTS

Despite its name, Diskbase is not another one of those 'Disk Index Only' databases, but is a true free-form database that can be used for a variety of purposes similar to the MS-DOS world's dBase programs. According to the documentation provided by Mr. Blake, Diskbase is designed to run on any Atari 8-bit computer with at least 48k memory, and with any DOS with a MEMLO of $1D00 or less. Atari DOS 2.0 and 2.5, DOS XL and SpartaDOS are specifically recommended. I haven't tried it with MyDOS 4.50 and it may not be compatible with it. MyDOS's documentation indicates a MEMLO of $1F00 which may not be sufficient for Diskbase.

CAPACITY

What really sets Diskbase apart from any other database is its storage capacity - up to 65,536 records! Diskbase gains its large storage capacity by virtue of the fact that only the index and file pointer bytes are loaded into memory to perform data sorts. For those who may need a better database that what they are now using, let's run through Diskbase's main features item by item.

FUNCTIONS

All of Diskbase's functions are selected from a main menu consisting of nine items, plus two that do not show on the menu. Unlisted items are the [!] key to toggle write verify on and off and the [?] key to see how much free memory is left. Free memory only determines how many records can be sorted, however, and has nothing to do with actual storage capacity.

DOS FUNCTIONS from the main menu allows all the usual disk management procedures such as formatting etc. Two that

are different with Diskbase, however, are Copy Records and Write Structure.

Diskbase uses absolute sector/byte pointers, which means that you should not use your DOS's copy function to duplicate a data disk because that will hopelessly scramble your file. The Diskbase Copy Records module will copy them without scrambling, but you do need two drives or a ramdisk because disk switching is not supported. The good news is that users of SpartaDOS can copy data files with the DOS's Copy function with no problems, since it retains absolute sector/byte locations.

The Write Structure choice of Diskbase allows you to copy a database's field names, lengths etc. to a new disk without copying the actual data, and is used to begin a new file with the same structure as an old one. This is particularly handy when you suddenly run out of disk space and need to extend a file onto another disk.

OPEN FILE is used to create a new file or to open an existing file for changes or additions. You will be prompted for a file name and, if it is not found, Diskbase assumes that you want to create it and switches to the New File option. Diskbase will ask for the number of fields (data elements) you want to create, and the field name length. The next screen is where you design your new file's data entry outline. If your data file is to have more fields than can fit on one screen, the screen will scroll vertically to allow additional entries. If a particular field is defined as being longer than 40 characters, the screen will scroll horizontally to allow the entry of data. You do need to plan ahead for hard copy printouts, however, and not use more than 80 columns of data per individual record if you think you will want to print horizontal hard copy.

USING DISKBASE

My primary usage of Diskbase is to maintain my disk file index. I created a file structure that allows 4 characters for a disk number, 14 characters for the program title, 26 for a file description, 7 for source ID, 6 for its date of release or acquisition and 3 for the type of DOS used. With an 80 column printer, that still leaves 20 spaces to divide between the columns during printout. Synfile+ and Data Perfect allow flexible formatting of printouts but Diskbase automatically justifies the printout against the left and right margins, plus a four-digit file number counter in the left column, and then divides the remaining spaces evenly to separate the columns. Once you have your data entry screen designed and hit Escape, your file structure will be written to disk and you will be returned to the main menu.

ALTER FIELDS allows you to change the name of previously created data fields within an existing file, but you cannot change their length.

CHANGE RECORDS is where you go to add records to a data file or to make changes to an entry. When you enter this selection, the first file in the database will be displayed along with the current record number and the total number of records. A one-line menu across the bottom of the screen allows you to jump to a particular record number, to the end of the file, to the next or previous record, back to the first record or to search for a particular string of characters in any of the fields. To add entries, you must first go to the end of the file. Previously entered data can be changed as desired throughout the entire file, and a search option is available to help you locate data that needs to be changed. Records can be deleted from the file while in this mode. Deleted records cannot be undeleted, so the program asks you if you are really sure before it deletes the record, and gives you an opportunity to change your mind.

READ RECORDS is one of Diskbase's most useful features. Although data entry from within Diskbase itself is fast and easy I prefer to use Atariwriter Plus or TextPro and then let Diskbase READ the text file into its own structure. This allows me to keep the original text file as a backup in case anything happens to my Diskbase file.

PRINT RECORDS allows you to output data to a printer, disk file, or the screen in three different formats. You can print all or just certain fields of all or just certain records. If you choose printer output, you are given the option of entering a printer control string to set up print pitch, margins, font type etc. depending on your printer's capabilities.

I have personally encountered what seems to be a bug in this routine. I have an Epson LX-86 programmable printer which can have its page length set through software commands but for some reason it refuses to accept this command when it is sent from within the Diskbase printer control string.

I like to have my printouts with a break between pages, but Diskbase's default is to print the entire file without any page breaks at all. If you don't have your paper set exactly right, it will print in the middle of the perforation. Single sheet printing is not supported.

The three formats offered for both printer and disk file output are: Regular Format, to print the records as they appear on the screen; Horizontal, to print one record per line in columns across the page; and Data Only, which is the opposite of Read Records. The Data Only option prints an ASCII text file to disk that can be updated with any word processor, and then read back into a Diskbase file. Diskbase also gives you the option of printing only certain fields or all of them and complex conditional expressions can be entered to filter out unwanted data.

SORT allows data to be sorted on any field in either ascending (A-Z) or descending (Z-A) order. Diskbase uses three bytes for each record in the file, and the sort buffer is limited to around 8K, which means that Diskbase can sort a file of approximately 2,600 records. Sorts do not move the data on the disk, but merely rewrite the sector and file pointers. Even so, the sorting of a large database on a floppy drive can require a considerable period of time. The use of a RAMdisk to perform sorts is highly advisable, provided the file to be sorted can fit within it.

I have my disk index on a hard drive, broken down into two separate files of 2,400 and 2,200 records each (A-L) and (M-Z) and even at hard drive read/write speeds, sorting one of these files takes over 30 minutes. On floppies, this would probably require a couple of hours, and your drive would be reading/writing during the entire sort operation! When I was maintaining my files on floppy, this caused my XF551 to overheat.

Something I found to be very helpful in the long run is the following. After you sort a file, use the Print to Disk option to write the data to disk. It will be written in alphabetical (sorted) order. Delete your old data file, and read the data back into Diskbase from the copy you printed to disk. Now the file will be on your main disk in sorted order, and subsequent sorts will go much faster. Printouts will be faster too, because the disk drive can find the files much quicker if they appear in sorted order. This also saves wear and tear on the mechanical parts of your drive's read/write head.

LEAVING DISKBASE

Any time you are ready to leave a file, cancel a command, or move to another operation, pressing Escape closes the file and returns you to the main menu. Herein lies my only real complaint about Diskbase, although even this is minor. There is no 'EXIT' command to return to DOS from the main menu. Even if you select the DOS FUNCTIONS, exiting from the program is not possible. The only way out is to turn off your power switch and reboot. But, considering the other features Diskbase offers, I can live with that!

DISKBASE 1.0 continued

DISKBASE ADVANTAGES

For people who have massive amounts of data to store and manipulate, Diskbase is unsurpassed, even by the commercial products. It is the only database program I have found that will run from a hard drive and and offer such a large volume of data storage and manipulation. When you consider that Diskbase is public domain and costs next to nothing, that makes it even more attractive! I must have well over $400 invested in commercial database programs and none of them will do as much, as quickly, and as efficiently as Diskbase. Since I discovered Diskbase, I have even stopped using those other programs that I had previously relied upon so heavily.

AVAILABILITY

Diskbase is available from the PAGE 6 LIBRARY as disk number DS#38 - DISKBASE at the usual price of £2.50

This review originally appeared in the November 1992 edition of Current Notes. Current Notes is published monthly and can be obtained on Air Mail subscription from the UK for $69 payable by money order or credit card. Write to CN Subscriptions, 122 N. Johnson Road, Sterling, VA 20164, USA.

Ian Finlayson's

TUTORIAL TIME

STRINGS TO PRINT

This article was inspired by an enquiry from a reader who was having trouble with a program when he tried to print what he was doing. The program was quite complex and used tabs to format data on the printed page - this did not work correctly on my correspondent's Atari printer. I was not able to solve the problem in that case as I do not have an Atari printer, but it was clear that the rogue program was using Epson compatible control codes for tabs and back-spacing. In general I would suggest that it is wrong to use codes that are specific to a printer if this can be avoided; although the Epson standard is widely accepted amongst dot matrix printers there are some that do not comply and the newer Laser and Ink-jet printers often use a very different set of codes - so do some older types like daisy wheel printers.

I have used strings for two purposes in the programs that follow, first to construct a line of text that can be sent to the screen or a printer maintaining neat columns and second to take numbers and format them so that they are printed in the correct position in the line. There are two program listings. The first is a very basic program which concentrates on showing you how the strings are manipulated, but it is a "risky" program which can easily be crashed as there is no checking on the inputs. I will describe this program in detail and leave you to work out what I have done to crash proof it and convert it into the second, more robust program.

PROGRAM DETAILS

First let me explain that I have chosen to generate a line that contains the following three components for demonstration purposes:

Date Remarks Amount (number)

First in **line 20** we dimension the variables that will be used in the program.

Line 30 uses a trick of Atari string handling to make certain that the string LINE$ is filled with blanks. This technique can be used to fill any string with any character. What you have to do is to make the first and last characters of the string equal to the character you want to fill it with and then use a statement in the form STRING$(2)=STRING$ - this fills the whole string with the same character.

Line 40 starts the input of the date. Dates are always a bit difficult as people use widely different conventions such as 15 January 1993, 15-01-93, 15/01/93, Jan 15 1993 and in America the month comes first 01-15-94. To accommodate all these variations would take a sizeable program so I have chosen the form 15-01-93 and, by asking for each part of the date separately, hope that clear prompts will encourage the user to get the input right.

Line 50 prompts for the day input which actually occurs in line 60. The semi-colon at the end of line 50 ensures that the ? prompt for the INPUT is at the end of the prompt rather than on the next line.

Lines 70 and 80 turn the input into part of the string LINE$. This is the string which will hold the whole line of text for printing. The STR$ function takes a number and turns it into a string. There is a problem because even if you type in 07, X will be equal to 7 and STR$(X) will be "7". To ensure that all dates line up a zero has to be attached to the front when the date is 9 or less (this is done in line 70) but not when it is 10 or more (line 80). Also if you type in 7.234 or some such for X, STR$(X) will be "7.234" which would spoil to date format! See how to avoid this in the second program.

Lines 90 to 120 do the same for the month as 50 to 80 did for the day and lines 130 to 160 do the same for the year.

Lines 170 to 200 prompt for a text string TEXT$ and embed it in the correct position in LINE$. This shows how easy it is to embed one string in another.

In **lines 210 and 220** the program gets a number input and then line 230 branches to the subroutine at line 500. I will come back to this subroutine in a moment.

Line 240 attaches the string generated by the subroutine onto the main string LINE$ in a position at the end which ensures the decimal points line up, then line 260 prints the whole string LINE$ on the screen.

The subroutine starting at line 500 is important as it demonstrates a technique for setting up numbers in position in a string so that they are decimal aligned. The program works for any number less than 10,000 and handles two decimal places - this is suitable for an amount of money as most currencies use up to two decimal places as in pounds and pence or dollars and cents. This wide range of numbers can include entries such as 0.26, 128, 76.32 or 9999.99 and all must be handled correctly. This is how it is done.

In **line 500** the amount input (X) is multiplied by 100. This puts the "pence" in front of the decimal point.

Next in **line 510** we add 0.5 of a penny and take the integer value of the result. The effect of this is to round off any decimal parts of a penny to the nearest penny. (An exact half penny rounds up).

In **line 520** a string NUM$ is created from the number X and the variable L is set equal to the length of this string.

Line 530 is where the last two digits are taken into a new string PEN$ - this is the pence. Note that by using strings in this way we ensure that PEN$ will be "00" if the original X was

```
WO 1 REM ******************************
CR 2 REM *    TUTORIAL SUBROUTINES    *
GM 4 REM *      USING STRINGS 1       *
XU 5 REM *            by              *
CO 6 REM *       Ian Finlayson        *
OG 7 REM *----------------------------*
HI 8 REM * NEW ATARI USER - FEB 1993  *
WW 9 REM ******************************
AY 10 REM
NH 20 DIM NUM$(7),PEN$(2),LINE$(38),TEXT$
   (18)
LY 29 REM *** SET BLANK STRING
RT 30 LINE$=" ":LINE$(38)=" ":LINE$(2)=LI
   NE$:LINE$(3,6)="-  -"
ZV 39 REM *** INPUT DATE
GK 40 ? "ENTER THE DATE"
PU 50 ? "          DAY (DD): ";
RV 60 INPUT X
CQ 70 IF X<10 THEN LINE$(1,1)="0":LINE$(2
   ,2)=STR$(X)
JT 80 IF X>9 THEN LINE$(1,2)=STR$(X)
GH 90 ? "        MONTH (MM): ";
SK 100 INPUT X
WD 110 IF X<10 THEN LINE$(4,4)="0":LINE$(
   5,5)=STR$(X)
NY 120 IF X>9 THEN LINE$(4,5)=STR$(X)
VZ 130 ? "          YEAR (YY): ";
SS 140 INPUT X
LL 150 IF X<10 THEN LINE$(7,7)="0":LINE$(
   8,8)=STR$(X)
TU 160 IF X>9 THEN LINE$(7,8)=STR$(X)
QK 169 REM *** INPUT TEXT STRING
DJ 170 ? :? "ENTER YOUR DESCRIPTION"
AZ 180 ? "(LESS THAN 18 CHARACTERS)"
DG 190 INPUT TEXT$
JL 200 LINE$(10,28)=TEXT$
HC 210 ? :? "ENTER AMOUNT (LESS THAN 9999
   ) ";
SP 220 INPUT X
SL 230 GOSUB 500
RE 240 LINE$(38-LEN(NUM$))=NUM$
QD 260 ? :? LINE$:END
OG 499 REM *** NUMBER TO STRING
JO 500 X=X*100
LB 510 X=INT(X+0.5)
ZS 520 NUM$=STR$(X):L=LEN(NUM$)
VC 530 PEN$=NUM$(L-1,L)
IK 540 NUM$(L-1,L-1)=".":NUM$(L,L+1)=PEN$
ZL 550 RETURN
```

a whole number (pounds).

All that remains is to insert a decimal point in NUM$ and reattach the PENce after the decimal point. This is done in line 540.

THE SECOND PROGRAM

The second listing is an amplified version of the first. It allows selection of a 38 character screen line or a 76 character line on a printer, and it also tries to put in a degree of error prevention. The error checking will generally stop the program from crashing, but it is not exhaustive - you can if you wish enter a date of 31-02-99!!!

```
WO 1 REM ******************************
CR 2 REM *    TUTORIAL SUBROUTINES    *
HO 4 REM *      USING STRINGS 2       *
XU 5 REM *            by              *
CO 6 REM *       Ian Finlayson        *
OG 7 REM *----------------------------*
HI 8 REM * NEW ATARI USER - FEB 1993  *
WW 9 REM ******************************
AY 10 REM
RV 12 DIM A$(1)
KA 15 ? "K↓OUTPUT TO SCREEN OR PRINTER (S
   /P) ";
QX 16 INPUT A$:IF (A$<>"S" AND A$<>"s" AN
   D A$<>"P" AND A$<>"p") THEN ? :? "USE
   S OR P ":FOR T=1 TO 200:NEXT T:GOTO 15
AJ 18 A=(A$="P" OR A$="p")
DV 20 DIM NUM$(7),PEN$(2),LINE$(38+38*A),
   TEXT$(18+38*A)
LY 29 REM *** SET BLANK STRING
UP 30 LINE$=" ":LINE$(38+38*A)=" ":LINE$(
   2)=LINE$:LINE$(3,6)="-  -"
ZV 39 REM *** INPUT DATE
YT 40 ? "ENTER THE DATE: ":TRAP 165
PU 50 ? "          DAY (DD): ";
KQ 60 INPUT X:X=INT(X):IF X>31 THEN 165
CQ 70 IF X<10 THEN LINE$(1,1)="0":LINE$(2
   ,2)=STR$(X)
JT 80 IF X>9 THEN LINE$(1,2)=STR$(X)
GH 90 ? "        MONTH (MM): ";
UK 100 INPUT X:X=INT(X):IF X>12 THEN 165
WD 110 IF X<10 THEN LINE$(4,4)="0":LINE$(
   5,5)=STR$(X)
NY 120 IF X>9 THEN LINE$(4,5)=STR$(X)
VZ 130 ? "          YEAR (YY): ";
KO 140 INPUT X:X=INT(X):IF X>99 THEN 165
HU 150 IF X<10 THEN LINE$(7,7)="0":LINE$(
   8,8)=STR$(X):GOTO 170
MP 160 IF X>9 THEN LINE$(7,8)=STR$(X):GOT
   O 170
LU 165 ? :? "DATE FORMAT IS DD,MM,YY":GOT
   O 40
QK 169 REM *** INPUT TEXT STRING
DJ 170 ? :? "ENTER YOUR DESCRIPTION"
AC 180 ? "(LESS THAN ";(18+A*38);" CHARAC
   TERS)"
DG 190 INPUT TEXT$
QW 200 LINE$(10,28+A*38)=TEXT$
LH 210 TRAP 210:? :? "ENTER AMOUNT (UP TO
    9999) ";
SP 220 INPUT X
SL 230 GOSUB 500
UU 240 LINE$(38+A*38-LEN(NUM$))=NUM$
IV 250 TRAP 300:IF A THEN LPRINT LINE$:EN
   D
QD 260 ? :? LINE$:END
DP 300 ? :? "PRINTER ERROR - CHECK - THEN
                             PRESS RETURN
   ";:INPUT A$:GOTO 250
OG 499 REM *** NUMBER TO STRING
JO 500 X=X*100
LB 510 X=INT(X+0.5)
ZS 520 NUM$=STR$(X):L=LEN(NUM$)
VC 530 PEN$=NUM$(L-1,L)
IK 540 NUM$(L-1,L-1)=".":NUM$(L,L+1)=PEN$
ZL 550 RETURN
```

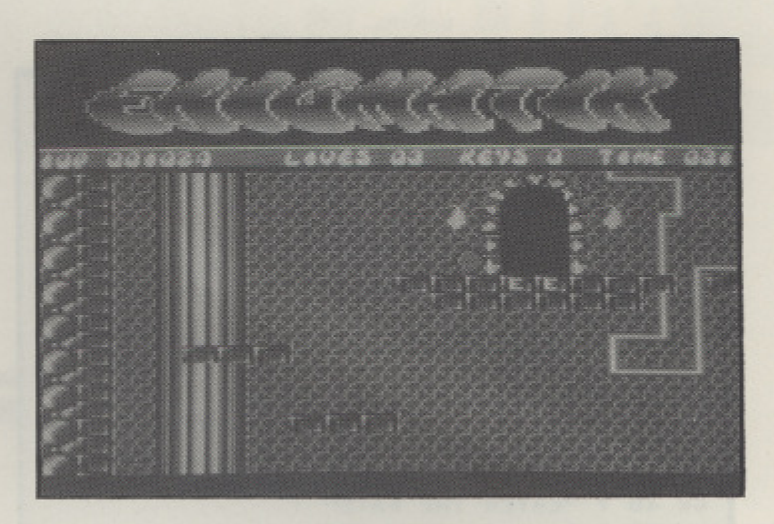
FINALLY

It should be possible for you to set out almost any combination of date, text and numbers in a line to suit your own purposes using the techniques show above. One sensible method of using the techniques could be to read data from data statements and format them for output in a tabular form on a printer. This would be more practical that taking each entry from the keyboard as I have done for demonstration purposes.

One tip for any of you who have a printer which supports proportionally spaced fonts - when laying out material in a tabular manner always use a fixed pitch font such as Courier. In proportional fonts the widths of different letters vary and this will disrupt the alignment of your columns.

Atari Basic handles strings rather differently from many other forms of Basic but it is capable of all your string manipulation requirements and has the advantage of handling very long strings indeed (up to the size of the spare memory in your computer).

ENIGMATIX



Another brand new game! Enigmatix, from Lancashire's Stephen Firth, has just been released by Page 6 Publishing. Page 6 are renowned for being more than a little fussy over the standard of products they adopt, so the verdict of this review is not going to come as much of a surprise.

Enigmatix is a multi-level scrolling platform game with a welcome element of originality. On each level the player's objective is to guide a small bouncing ball to a termination point which is marked by a large candle-lit archway. The strength of bounce is increased if you hold down the joystick trigger and decreased when you release it, while sideways movement corresponds to the relevant stick directions. Hazards abound on the route to freedom, such as large fire pits and dissolving blocks. As you zip across the platforms you can pick up bonus points by bouncing onto 'P' symbols (the bigger the bounce, the bigger the bonus!) and also obtain keys, which are essential on some levels to establish a path to the exit. There are lots of other intriguing features - bounce-operated lifts, reverse controls and turbo-bounce blocks to name but three - but these are left for you to discover. As if things weren't tricky enough, you must also keep an eye on the uncompromising timer! Points are awarded for the time remaining upon completion of each level.

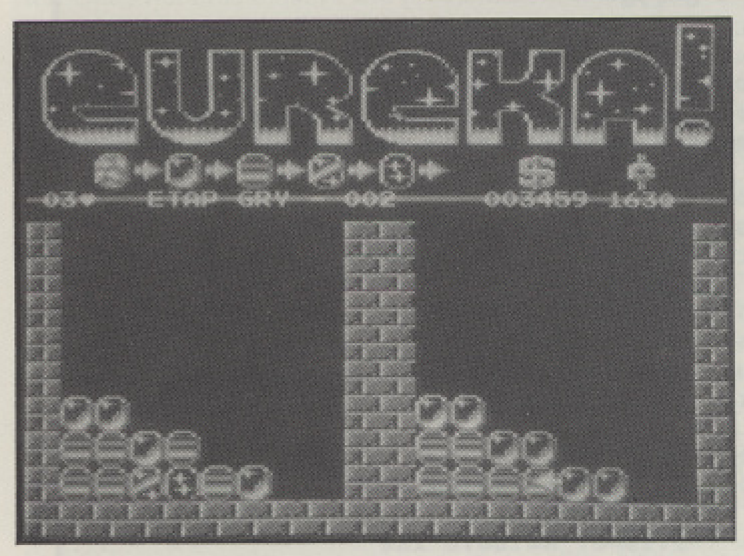
Title:	**ENIGMATIX!**
Author:	**Stephen Firth**
Publisher:	**Page 6 Software**
Price:	**£6.95 disk only**
Players:	**1 or 2**

Reviewed by Paul Rixon

Visually, the game is a neat demonstration of the Atari's capabilities. The backdrops are clear and detailed and there are some great special effects such as a rainbow-coloured, swaying 'Enigmatix' logo. Animation of the bouncing ball itself is smooth and realistic, leading to an overall feeling of responsiveness and playability. The latter is further enhanced by a sensible provision of start-up options - one or two player modes using one or two joysticks - and a handy save game feature. If you master all the levels provided (or if you find them too hard!) you can load up a screen designer and create some more of your own. The screen designer and save game functions are loaded separately from disk when selected from the main menu - which, incidentally, is accompanied by an excellent soundtrack.

Enigmatix is a very competent game indeed and I do hope the response from users will be suitably encouraging. I'd like to see a lot more games from Stephen Firth, especially if they're all as good as this one!

EUREKA



Eureka - I think I've worked out what this game is about! The Polish on-screen instructions aren't particularly helpful (unless, of course, you happen to be Polish...) and the printed English ones are almost as bad. Still, after a few goes you realise that Eureka is really quite a simple concept. It's a puzzle game which shares some similarities with recent offerings from Ke-Soft. However, this one's actually from A.N.G. of Holland who have imported several titles from Poland, where 8-bit computing is apparently quite popular. Did you know that Atari are still manufacturing XE machines for the Eastern Europeans?

Eureka kicks off like a PD demo with a scrolling (Polish) message and a lively soundtrack. A press of the Start button reveals two piles of symbolic objects, each contained in a brick-surrounded trough. Above these is a curious diagram showing a sequence of symbols and a status line indicating the number of remaining lives, the cumulative score in dollars and the potential reward for completing the current level. The reward rapidly depletes until it reaches zero and thereby terminates a life.

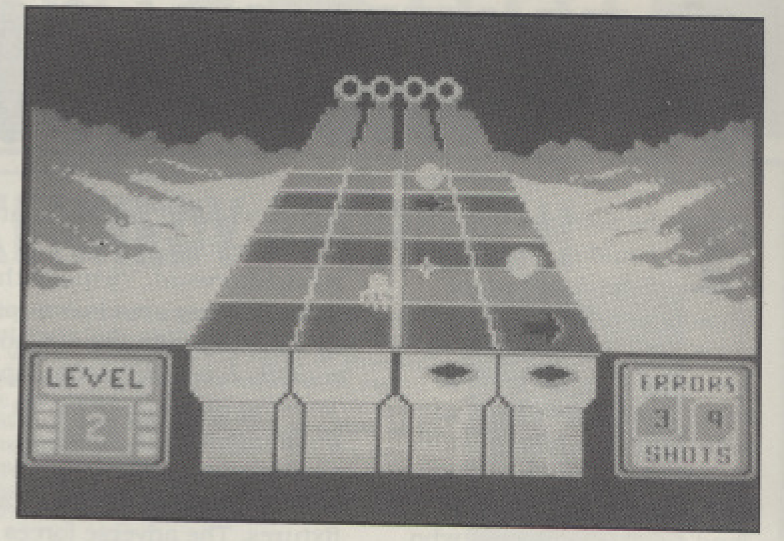
What you're required to do is examine the left-hand pile of objects and try to replicate the exact pattern in the pile on the right. By clicking a joystick pointer on an object you can alter its symbol, and that of the surrounding objects, in line with the diagram displayed overhead. If you manage to form the corresponding pattern you obtain an appropriate cash prize but if you get it wrong there's no alternative but to forfeit a life. To avoid defeat you must therefore study the situation carefully before making your move. There doesn't seem to be an option to save your game position, so running out of lives can be quite a frustrating event!

Graphic and sound effects are not spectacular but the game derives most of its appeal from the addictive nature of the puzzle. Once you get the hang of it, time just flies by! The main drawback, as with other games from A.N.G., is the poor standard of documentation. However, I understand that versions supplied by Micro Discount are likely to be somewhat improved on the 'raw' review copies I received, and could well have much of the program text translated into English. If you enjoy puzzle games of this type you will probably overlook the rough edges and simply appreciate the challenge.

Title:	**EUREKA**
Publisher:	**A.N.G. Software**
Supplier	**Micro Discount**
Price:	**£5.95**

Reviewed by Paul Rixon

HYPNOTIC LAND



Nowadays, a new ROM cartridge is something of a rarity - a luxury too. No frustrating wait for the loading process, no chance of disk errors. Just plug it in, switch on, and the game starts in a split second! HYPNOTIC LAND originates from Lindasoft, who are closely linked with Atari's Italian Division. It's now available in the UK, albeit in limited quantities, directly from Page 6 Publishing.

Hypnotic Land is a variation on the 'Klax' theme that made its 8-bit Atari debut early last year in the form of Hyperon's Glaggs It. Imagine you're standing at the end of a long ramp looking up towards its top edge in the distance. The ramp is divided into four lanes, each of these split into red and blue squares. At the base of one lane there's a cup on a pedestal and either side, useful information on your current progress. Coloured balls roll from hoops at the top of each lane towards your position. By clicking a joystick pointer in the red squares in each lane you can place arrows which instruct the descending balls to change lanes in the appropriate direction. The idea is to ensure that any balls collected by a cup correspond to the colour of its pedestal. If you allow a suitably coloured ball to escape off the end of the ramp, or collect a wrongly coloured ball in the cup, your errors count is increased. Make more than five mistakes and the game is aborted. An unfortunate oversight here is the lack of a save game feature - each time you are forced to re-start from the very beginning.

On higher levels there are several other problems to contend with. Firstly, the number of cups increases from one to a maximum four and the balls are launched more frequently. To make matters worse, various nasty monsters appear and steal the descending balls. You can shoot back at them but all the while you must ensure that the balls are collected in their matching cups. Quite a challenge!

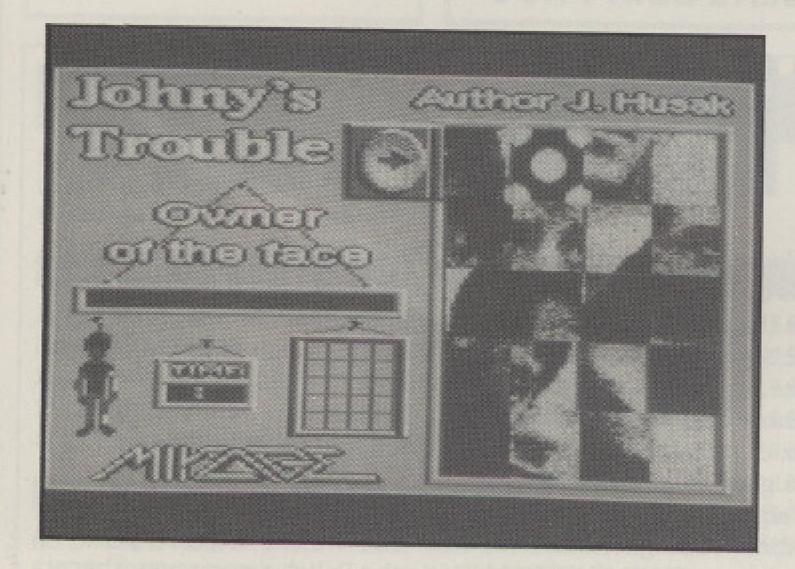
As far as the graphics go Hypnotic Land is no excuse for throwing a party but everything is clear, colourful and quite adequate for the intended purpose. A catchy (and familiar) tune plays continually throughout the game.

The game is highly addictive in itself but the fact that it's supplied on ROM cartridge adds considerably to its playability rating. Congratulations to Lindasoft for a bold move!

Title:	**HYPNOTIC LAND**
Publisher:	**Lindasoft**
Supplier:	**Page 6**
Price:	**£12.95 ROM**

Reviewed by Paul Rixon

JOHNY'S PROBLEM



Johny has a problem! Tomorrow is his girlfriend Margaret's tenth birthday and he's already been out to buy her present - some pictures of well-known actors' faces. Unfortunately his brother Charlie has found a large pair or scissors and mischievously cut the portraits into lots of little squares. If Johny doesn't glue them back together soon, his girlfriend may never forgive him ...

As you've probably guessed your job is to help Johny overcome his dilemma. By manoeuvring a large cursor you must first release sections of the picture into a large grid where you can then attempt to reassemble them in the correct locations. Once they're on the grid you can slide the pieces around into position or, if you don't currently need them, send them back into storage. The task would be virtually impossible in the time allowed if it weren't for an extremely useful panel showing the correct position of the section of picture under the cursor. You've still got to be careful though as occasionally a bomb is released (so much for the plot!) and failure to return it in a few seconds results in the game's abrupt termination. On the positive side there are several bonus tiles that add valuable time to your otherwise decreasing allowance or even take you directly to the next level. There are twelve famous faces in all - enough to keep you puzzling for quite some time!

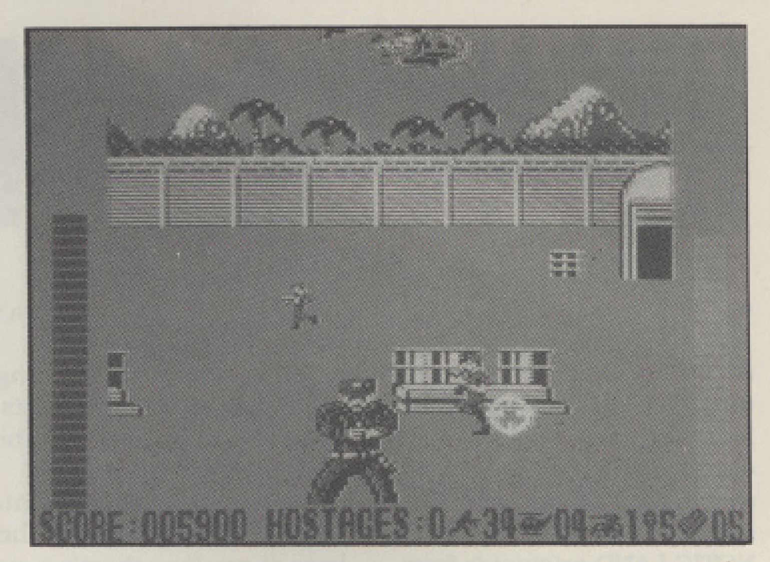
Johny's Problem may sound similar to other 'jumbled picture puzzle' games but it does feature some unique touches and excellent visual effects. All the pictures are digitised and therefore recognisable, so you can also have fun guessing the personality before the computer reveals the answer! The surrounding playfield has been very well designed using the highest resolution graphics. The intro screen contains scrolling game instructions and a very clever film strip effect of the various actors' portraits. Music too is quality stuff, though an optional silent mode might have been a good idea! I'm pleased to report that the game contains English text throughout.

If you're looking for something that's a bit different to the usual shoot 'em ups or platform games you could do a lot worse than check out Johny's Problem. The standard of presentation is very high indeed and the game itself is a lot more additive than you might imagine. The problem will be knowing when to turn it off!

Title:	**JOHNY'S PROBLEM**
Publisher:	**A.N.G. Software**
Supplier:	**Micro Discount**
Price:	**£5.95**

Reviewed by Paul Rixon

OPERATION BLOOD



The software drought could be ending for 8-bit Atarians (or should that be Atari Classicans?) following Micro Discount's recent decision to market many imported games titles in the coming months. Heading up the first batch is OPERATION BLOOD from Holland's A.N.G. software, who are probably better known for publishing the disk-based Mega Magazine.

Operation Blood is essentially a fast, furious and violent shooting gallery. Your mission is to wipe out the enemy and save the world! The instructions provided don't go overboard on detail but fortunately the game itself is very straightforward. Virtually the entire playing area is occupied by your side-on view of a horizontally scrolling battlescape. The scene is complete with buildings, fences, radar, enemy commandos, tanks, helicopters and other topical fixtures. The adverse forces take great delight in constantly blasting you from all angles so it's useful to know that your joystick controls a small cursor representing the sights of a machine gun. Whilst this is more than sufficient to annihilate human opposition, when it comes to tanks and choppers you'd be well advised to call upon your space-bar operated grenade launcher!

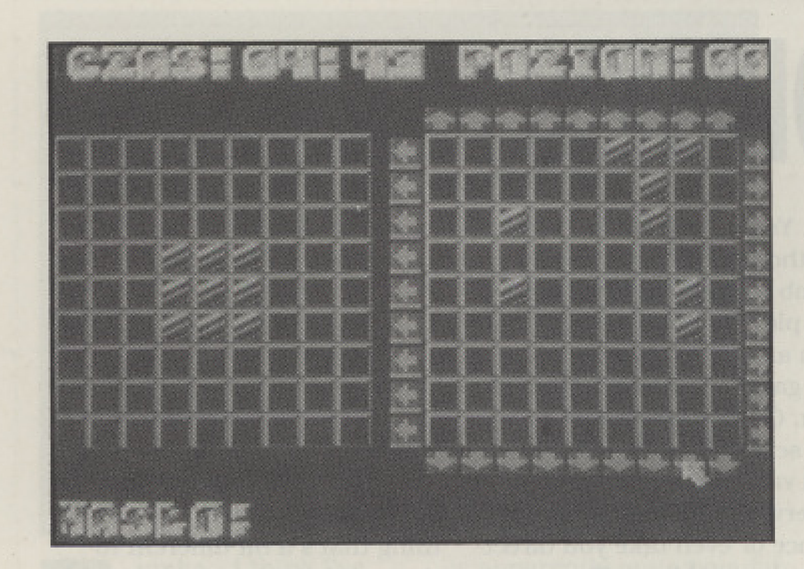
Before you let rip with the trigger you should bear in mind that ammo is in limited supply and it's worth looking out for the occasional bonus package. You can also gain rapid fire ability and extra health units by shooting certain icons. Watch out for red cross officials and innocent bystanders though - you might need them later! A status line at the base of the screen keeps track of your rate of success in achieving specific 'hit' quotas of men and machinery. It seems to suggest there may be hostages to rescue on later levels, though this isn't actually documented (the Polish screen prompts aren't too helpful either!). No doubt there's plenty of excitement in store though so far I can only admit to having experienced the first two scenarios!

Graphically, Operation Blood is a good effort with some clever animation of the enemy forces. Mind you, it might not win an award for outstanding colour! Sound effects include a reasonable tune to accompany the intro screen and competent gunfire noises during the game itself. Operation Blood is sufficiently different from other shoot 'em ups to ensure it doesn't have a great deal of serious competition. It has to be recommended.

Title:	**OPERATION BLOOD**
Publisher:	**A.N.G. Software**
Supplier:	**Micro Discount**
Price:	**£5.95**

Reviewed by Paul Rixon

THINKER



Two puzzles in one game - Kosta Rubica and Uk'adanka. The theme of both components is similar to Eureka, another game from A.N.G. reviewed in this issue. The basic concept requires the player to examine a pattern in one half of the screen and try to duplicate it in the opposite half. There is a strict time limit to complete the problem.

Kosta Rubica comprises two grids of 81 squares, some of which are shaded to form a distinctive pattern. By clicking the joystick pointer on arrow symbols at the ends of the rows and columns in the right hand grid you can shift them along by three squares at a time. Combining the movement of rows and columns in this way (hence the Rubica!) you should be able to recreate the pattern depicted on the left. At first it's fairly easy but then, when you're just beginning to get the hang of it, the patterns become more complicated and it's quite a challenge to succeed in the time allowed.

Uk'adanka also contains two grids of 81 squares but this time the joystick is used to slide squares into a vacant space, in much the same way as those sliding tile picture puzzles (see Johny's Problem for a good example!). Some of the squares contain raised symbols - straights, corners, 'T' junctions and so on - and again the intention is to duplicate the pattern on the left of the playfield. After level one, things start to get tricky!

A welcome feature of both games is a password system which ensures you don't have to keep slogging through previously completed levels. Just take note of the code at the foot of each screen and you can then jump directly to the level in a future session. The user interface is generally very friendly - for example, pressing the Escape key at any time takes you immediately back to the game selection menu. The break key activates pause mode whilst the space bar toggles the design of the joystick pointer.

Graphics are very well defined and expertly shaded, with some nice special effects at the start and end of each level. The only niggling point is the Polish screen text (this might be translated in the UK release versions). In common with other Polish games.

Thinker is accompanied by some good music which, as usual, can't be switched off! Overall the game is very enjoyable.

Title:	**THINKER**
Publisher:	**A.N.G. Software**
Supplier:	**Micro Discount**
Price:	**£5.95**

Reviewed by Paul Rixon

THE ACCESSORY SHOP
ISSUE 60

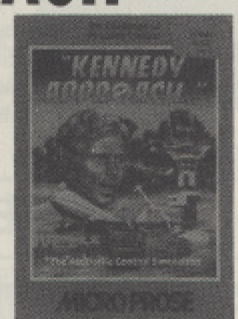
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FUTURA: Issues 1 to 5 available now. Issue 6 out February 27th. Price Disk £1.95 each (£11 for six issue subscription); Printed copy and cassette £3.95 (£22 for six issue subscription). Send cheque/P.O. (Payable to S.J. Murray) to Stuart J. Murray, NOSAUG, 71 Walker Road, Torry, Aberdeen, AB1 3DL

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ATARI MAGAZINES: Atari Home Computer Club News/Input-Output (UK official Atari 8-bit magazine - the only issues) 5 issues from Summer '82 to Spring '84, £5; PAGE 6, 30 issues from Issue 1 to Issue 31 ex. 16, £35; The Atari Home Computer Owner's Club/Monitor, the first 20 issues from 1982 onwards, £30; Atari User, the first 31 issues from May '85 ex. August '87, £30; Antic & Analog, almost all issues including rare early ones. Will split - best offers accepted. Tel. 0273 779595 (Brighton)

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WANTED

BADLY WANTED: The person who 'mistakenly' took my 1050 drive from the Tiger Developments stand at AMS 6. It was in a white plastic carrier bag underneath the stall. No questions asked if it is posted to R. Espino, 111 Paston Ridings, Paston, Peterborough, Cambs. PE4 7UX. If anyone saw anything please contact me.

MAGAZINES: PAGE 6 magazines from Issue 1 to Issue 20 required. Please send your price including postage to M. Kloss, 6 Seaton Belgrave, Tamworth, Staffs. B77 2NP. Tel. Tamworth 251393

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HORSE RACING: Does anyone have any horse racing games on cassette? Plus Winter Events or Olympiad cassette or ROM. Will pay asking price and postage or will swap. A. Surrey, 39 Luton Road, Faversham. Kent ME13 8HQ. Tel. 0795 535133

MANUALS: Manual wanted for FS2 cartridge version. Would someone kindly loan me theirs to copy? Phone Jerry on 081 749 8762 or write to J. Hatten, 31 Starfield Road, Hammersmith, London W12 9SN

MAGAZINES: I need the following issues of Atari User - July '88, Sept. '88, Oct. '88 and PAGE 6 Issue 35. Will pay up to £2 each (good condition) plus postage. Can anyone help? Write to Dave Horner, 6 Alma Way, Heath End, Farnham, Surrey, GU9 0QN

ANYONE GOT!: XL BASIC orange cartridge. Swap for Atari 800 populated 16k memory module or buy. Contact Dave, 34 Hoggs Lane, Northfield, Birmingham, B31 1SB

SERIAL LEAD: Lead for SIO port wanted for computer to tape deck, would consider the lead and tape deck for XE system. Gary Beall, 11, White Cross Rd., Cudworth, Barnsley, S. Yorks.

PEN PALS/HELP

FRENCH CONTACT: XL/XE owner wants contact with any 8-bitter. would like to get in touch with other users. Write to Patrice ROBERT, 7 bd. Marcel Pourtout, 92501 Rueil Malmaison, France

GOOD MORNING!: My name is Jack Dworakowski. I live in Poland, I am 15 years old. I have got Atari 65XE and disk drive CA-2001. I am interested in computers and I would like to correspond with your readers. May I have reader's addresses please? Jacek Dworakowski, ul. Kobielska 11 m. 7, 04-359 Warszawa, Poland.

HELP: Would some kind samaritan kindly LOAN or will purchase the complete utility that enables Word Processor files to be ported over from the 8-bit to the 16-bit ST. Write to Charles Smith, 93 Preachers Lane, St. Ebbes, Oxford, OX1 1RT

RAMBIT TIPS: Attention all owners of tape recorders with Rambit Fast Loading Systems installed. Tips on how to convert games. Tel. 061 338 5941 after 5pm and ask for Chris Pennington

THE GRIM REAPER: A completely FREE disk mag for your XL/XE (not 810 drives!). To receive a copy send a SAE and one disk (for the last two issues) or two disks (for the last four) to: TGR, 17 Litton Bank, Gamesley, Glossop, SK13 9HF. I'll return the disks ASAP!

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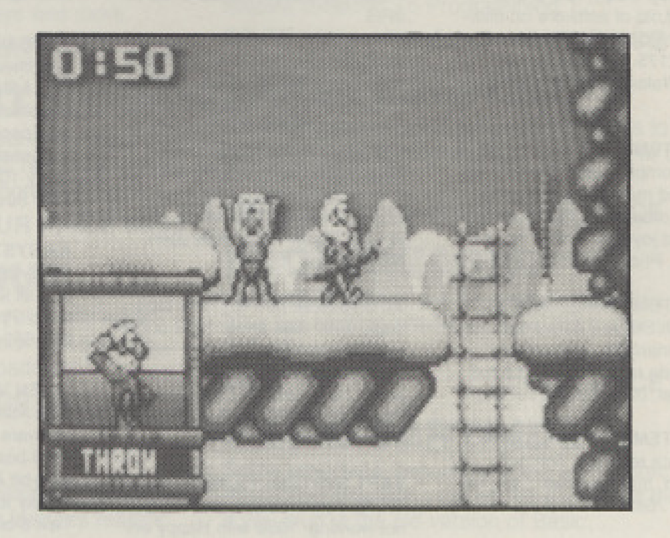
There are still thousands of Atari owners who know nothing about Page 6 and New Atari User. Do them a favour. If you sell your equipment or buy through other magazines such as Micro Mart, or even your local paper, ask them if they read New Atari User. If they don't, give them our address or phone number and tell them just what they are missing. The more readers we have the more support we can give to the Atari Classic. You can still do your bit to help the Atari world and bring more pleasure to new owners

HAND HELD FUN

Recent or imminent releases for the best colour portable on the market include: Baseball Heroes, Basketbrawl, Battlezone 2000, Cabal, Daemonsgate, Dinolympics, Dirty Larry - Renegade Cop, Dracula, Jimmy Connors' Bad Boy Tennis Challenge, Lemmings, Malibu Bikini Volleyball, Ninja Nerd, Pinball Jam, Raiden, Rolling Thunder, Shadow of the Beast, Steel Talons, Switchblade II, Ultra Star Raiders, and Vindicators.

Unfortunately I have only been able to get my hands on a few of them so far, and usually they arrive for review as a pre-release version - just a naked chip on a bare circuit board, with no box or instructions at all! This means that sometimes I may miss some of the subtler points of the game and I can't always tell you how many people can join in or how many levels there are, but here is what I have learnt so far.

DYNOLYMPICS



The Lemmings clones have started arriving! (And despite the fact the everyone knows that there was never a period when men and dinosaurs walked the earth together, here they are again!) You control a tribe of little men who, unlike lemmings, wait patiently to be given instructions rather than wandering aimlessly to their death. You control one man at a time on an eight way scrolling screen. He can walk to any point within reach, form part of a living ladder to allow others to climb higher, pick up useful items, or (on some levels) summon a useful item - although this is to be avoided except where necessary as one of your tribe has to sacrifice his life to complete the magical summoning ritual!

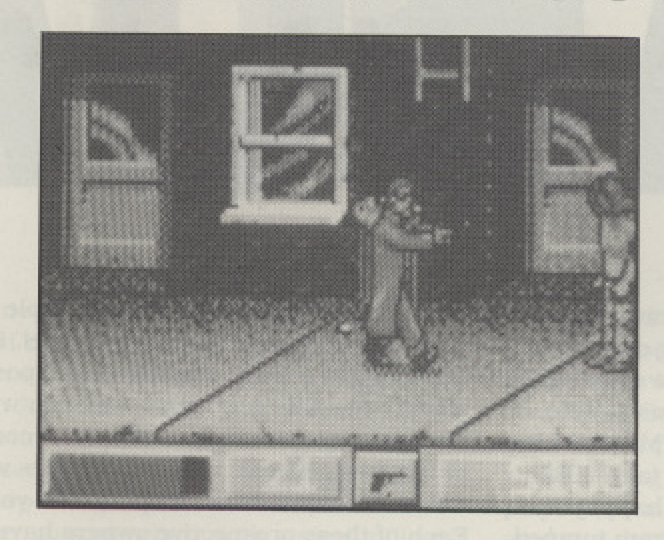
Your man can carry one item at a time and it gives him extra abilities, for example a spear can be be used for leaping over chasms or killing dinosaurs, a rope can be used to help other members of the tribe take short cuts or to reach otherwise unattainable locations, a torch can be used to burn down obstructions, a wheel can be used for leaping over wider chasms, and so on. Most of the items can also be thrown, either to allow you to get multiple items across a chasm (since you need to be holding a spear in order to vault over it) or to allow a group of you to cross a chasm with a single spear.

Levels vary from simple ones which teach you how to use a new item to complex ones where you need to work out the optimum route across all the platforms, position men as supporters to give a leg-up wherever needed or as rope holders to make new routes, then send men along the routes you have made, burning obstructions and destroying enemies, to reach this level's objective. AND you are racing against time!

You get passwords every fourth level (at least I got my first one after level four and I assume they come at regular intervals - I haven't finished level eight yet!) - although why they don't give you a password on every level (like Lemmings and Crystal mines II) is a mystery to me! You start with ten men in your tribe; some will die along the way; some will be sacrificed to summon required objects; occasionally a new man will join the tribe. I suppose playing the levels in groups of four means you have to be a little more careful about keeping your men alive so that you can finish all four levels in one go, but I do find it tedious having to spend about seven minutes replaying levels five, six and seven just so that I can try level eight again! It also seems slightly unfair that on some levels when someone dies while carrying certain items you are stuck and have to go back to your last password.

Apart from that the game is superb - excellent graphics, nice soundtrack, clever puzzles to solve, great fun to play!

DIRTY LARRY - RENEGADE COP



A traditional eight level, horizontally scrolling shoot-em-up. Steelburg, USA, we join our hero at the office of his chief, getting yelled at again! "...and darn it Larry, that's the third car this week! You need to learn to respect police property! As of this moment, you walk or take the subway! Judge Smite just threw out another case! Get to the Knight Shade Hotel, this time with a proper warrant, and bring in Harold Snuff, a.k.a. Mr. White, an iceman boss. The charge is drug trafficking ..."

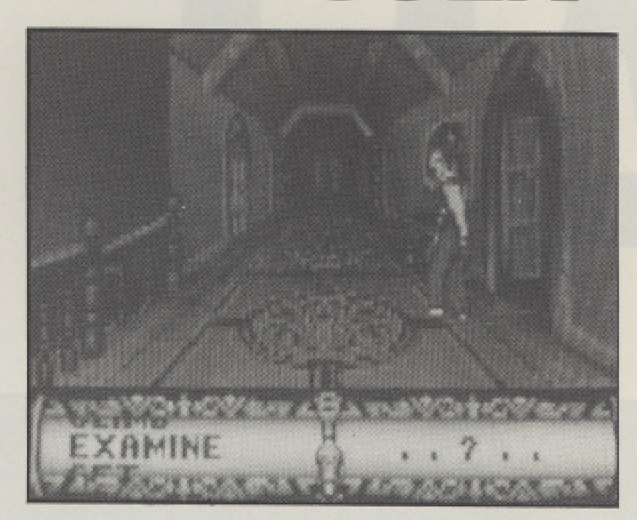
Unfortunately Mr. White appears to know that Dirty Larry is on his way as the pavement is guarded by gun-toting gangsters, fat ladies with bicycle chains, nuts who set fire to themselves to try and hurt you(!), and mad motorcyclists. Fortunately Dirty Larry is pretty agile, he can leap over gunfire and motorbikes, and is very good with both his fists and his gun. He is also pretty hard to kill - he can take 40 shots at point-blank range before finally keeling over - just like the movies! You will also find power ups along the way to restore your ammo and your health.

The subway is full of muggers, including seven-foot loonies with baseball bats! At least the ride is fairly short, and you get a new weapon to play with - a machine gun - it doesn't half get through the ammo fast though!

Next the hotel, but first the plot thickens: Meanwhile ... "Mr. Snuff, I require a favour of you. There is a cop that I need out of the way." "Consider it done, Mr. Big...".

Now things start getting tough and the ammo soon runs out against the continual flood of muggers and high-kicking mountains of muscle. You'll have to buy the game if you want to find out what happens next!

DRACULA



In keeping with the new film, the game goes back to the original Bram Stoker novel for the basic storyline. This is a graphic adventure in the King's Quest or Monkey Island style. You can walk around the rooms in any direction; to interact with the people and items you walk up to them and use a scrolling window at the bottom left to pick a verb (EXAMINE, GET, USE, OPEN, CLOSE, TALK TO, LOOK, TURN, CLIMB) and another at the bottom right to pick a noun - either what you are touching or something in your inventory which you wish to use. When you are talking to someone you are given a scrolling list of phrases from which to choose.

When you reach various points the program takes over and provides some scrolling text or an animated sequence to carry the story forwards. Together with the excellent graphics (albeit limited in colour) and the moody background music the game generates just the right atmosphere for exploring Dracula's dark and brooding castle!

As long as you remember to wear your crucifix you won't be in any immediate danger during the early stages of the game, but once you discover a blood-covered rock you will almost certainly die on the next move! This is rather unfortunate since the game does not appear to provide any way of saving/ restoring your current position, nor passwords to allow you to restart at a particular point in the game - instead you must play the game again from the beginning! Although this is common in arcade games it is about ten years since I last saw an adventure style game without a SAVE facility (and that was on a BBC!). So to save you at least one death I will tell you that the next screen says, "The bright light wakens Dracula." (Hint!)

As least they seem to have kept the "Bang! You're dead!" bits to a minimum (at least in the early stages - I haven't got much further yet), so as long as you don't mind starting from the beginning each time you want to play then Dracula looks like an excellent implementation of a graphic adventure.

SWITCHBLADE II

"Two hundred years ago, the young warrior Hiro defeated the evil Havok. As a reward, Hiro was granted a long, youthful life. There was a reason for this generous gift. Havok survived the battle and vowed one day to return. Now he's back, stronger than ever and Hiro must come out of retirement and beat him once again."

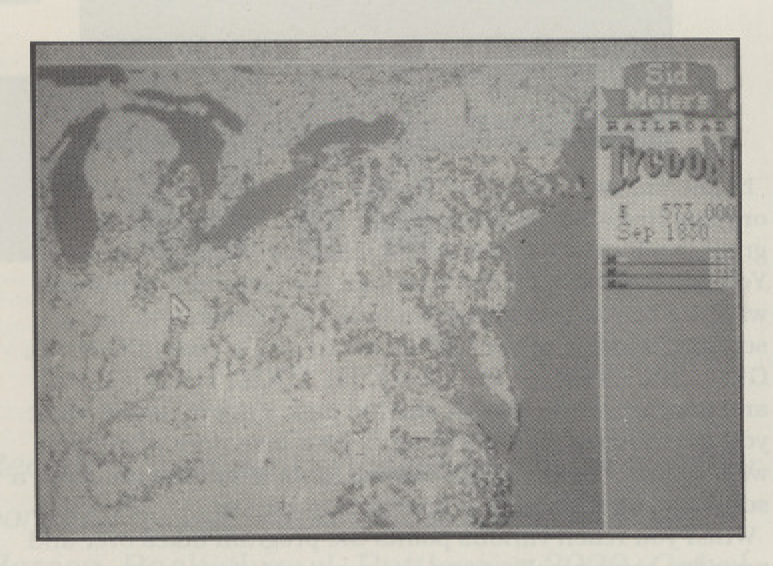
Yet another eight-way scrolling, platform shoot-em-up! At least Hiro can leap to enormous heights so getting around isn't too much of a problem; surviving however is! You start with just a switchblade so you need to get up close to fight the baddies, but you soon find ammo to charge your plasma gun and can start on the long range stuff.

As usual you get coins for killing anything that moves and these can be spent at shops along the way for extra health, lives or ammo, or on power ups such as Spin Blades and Beam Lasers, or protection such as a Shield or a Dragon which swirls around you destroying anything it touches.

Switchblade II starts out nice and easy, just travel from left to right jumping over obstructions and if it moves kill it, but soon the game moves to underground tunnels protected by ceiling-mounted lasers and hidden traps on the floor. You will have to find the right direction to travel in, sometimes needing to smash down walls to find hidden routes in order to reach the end-of-level baddies which are the usual extra-large, high powered nasties. The levels are divided into sections and you start with three lives which allow you to restart the current section when you die.

If you are addicted to this type of game then rush out and buy it. If you haven't got anything like this, then Switchblade II is well worth considering as, even though it doesn't seem to be particularly innovative, it is still a very fine example of its genre. (But check out Shadow of the Beast as well - that is equally excellent.)

ALL ABOAR



Railroad Tycoon has been around on the PC for quite a few years now and in that format has been one of my favourite wasters of time. It has only recently snuck its way on to the ST and my first thought was how it would be converted to work without too much floppy swapping. My next thought was whether the graphic standard would be altered. My fears on both counts have been allayed by some smart Microprose programming.

First things first though. The box comes with a warning sticker stating 1 MEG only, an ambiguous reference which started to deter me. On my old portable twin disk 512K PC it worked fine, if slowly, so why should it need 1 meg on the ST? Since my 1040 is still not at all well and the Christmas fairy has not yet seen fit to provide me with anything else I had to borrow a machine which was a mere 520 STFM. I tried it, the disk (all 720k) whirred happily and the program jumped in with no problem at all. In fact playing the game did not throw up any problems at all in the half meg memory I was using. I suspect the sticker really means that a double sided drive is necessary. All the same have a word with your dealer first just in case I got lucky.

Now to the game. I was glad to see that the atmosphere was the same as the PC and the graphics seemed to have been ported from the MCGA (320 x 240) mode with the necessary 256 colours or so. Indeed the ST flesh tones surpassed the PC standard. Response was very good and the sound was excellent. I was always enamoured of the chuffing and whooshing of steam trains!

The aim of this opus is to build and maintain a railroad along with managing the attendant problems of crashes, floods, emergencies and property speculation along the way.

The opening menus begin to suggest the depth of this game. You are offered several levels of play together with multiple options of difficulty within each level. For the first game make it as simple as possible for once this gets under way you will need to concentrate on tactics. The computer does generate other opponents who will build railroads to compete with you. Each of these prospective owners have their own personality and are based on historical persons. In one game I found myself facing George Stephenson, Napoleon III and Abe Lincoln! Be sure to read the very thick manual before starting play as it gives an insight into the style of the various opponents, it also explains the vagaries of the different sorts of rolling stock available. Once you have chosen your levels of play then you are asked where in the world you would like to develop the railroad. The possibilities are the Eastern or Western USA, England and Wales (no Scotland) or Europe (this contains the bottom bit of Britain and a map stretching from Portugal to mid Russia). Each map has different associated cargoes and thus presents different problems. My favourite map is the English one although the way the game is slanted the US maps are probably the best balanced. I found the European map too far reaching and as a result it loses a little of the local feel the other three maps offer.

Once the options and the playing area are selected then it is time to decide on your first track laying exercise. This takes time to consider since the player needs to have an idea as to what sort of service to provide. As a rule it is best to consider passenger and mail transport in the early sections since there is normally a ready supply and demand for these. Once the track location has been decided upon (London to Chatham or Canterbury can be good, as can Liverpool to Manchester) the stations need to be built. The first station of the game will include a workshop within the confines of which your rolling stock is built.

In the first few moves your train will be something akin to the Rocket, a slow moving but relatively inexpensive machine that will carry one carriage comfortably and complain at more than two. It is then time to set a route and cargo for

WIN A COPY OF RAILROAD TYCOON!

You can be the lucky winner of a copy of this great game by simply answering the following questions.

1) Complete the Railway title Ravenglass and ------- Railway.
- **A) Edgedale**
- **B) Elmdale**
- **C) Eskdale**

2) When was the Orient Express withdrawn from service?
- **A) 1955**
- **B) 1977**
- **C) 1986**

3) Which Railroad Engineer did Alan Hale portray on Television?
- **A) Barnaby Jones**
- **B) Casey Jones**
- **C) Casey Court**

Tie Breaker: What is name of the American who invented 'luxury' train travel?

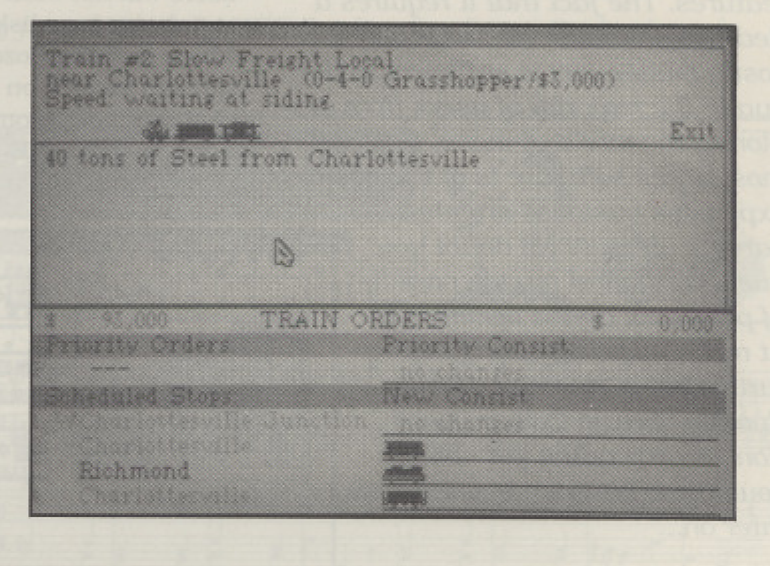
Just jot your answers down and send them off to Railroad Tycoon, Page 6, P.O. Box 54, Stafford, ST16 1DR. Closing date is 28th February 1993 when the winner will be drawn from the correct entries received.

ARD!

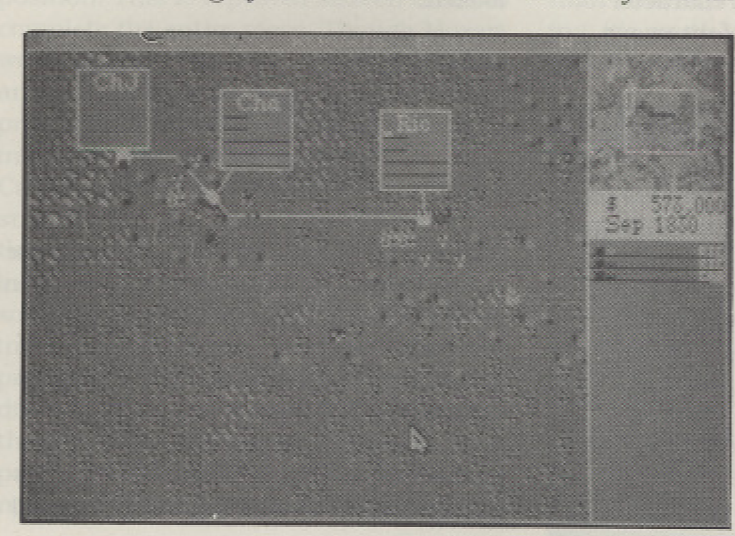
the new train. This is the bread and butter of the railroad, the more passengers, letters or goods that can be transported from A to B the better the revenues. This of course assumes there is a demand for the service you offer. It is all very well transporting coal for instance but it had better go somewhere with a steel mill so that it can power the furnaces to produce the steel that the factory needs to make the goods that the ports export and so on. It is one of the complex joys of the game that certain goods create other goods that are wanted at other points.

The easiest way to demonstrate this is to describe a simplified game, I have stations at Leeds (which has a textile mill and therefore needs cotton) Liverpool (which has a port that supplies cotton and demands passengers) and Manchester (which demands textiles and has passengers to travel). My train starts in Liverpool with a cotton truck, travels to Leeds where the cotton is sold to the mill and converted to textiles. These are then taken to Manchester where they are sold and where passengers embark to be taken to Liverpool where more cotton is loaded. This is a somewhat simplistic scenario but gives a flavour of the decisions that need to be plotted.

When it is considered that a player can be running up to thirty or forty trains at a time and even possibly time tabling them to avoid crashes, the scope begins to become clear. If that is not enough there is a constant technological improvement. Although you start with the Rocket, as the game goes on progression to The Flying Scot or even TVR is possible, leaving the player the management decision as to when to upgrade and to what. If that is not enough to be thinking about then consider this! The other players are trying to take over your railroad by either throwing you out of some towns or by buying your stock and owning the company. And if you are not making a sufficient profit your shareholders may well vote you out of office. Loans need to be obtained, stock sold and shares purchased to attack or defend your position, stations can be improved to serve larger areas or to be the base of alternative industries. Towns may even grow around your stations owing to improved business.



This is not a game to sit down and play with for an odd half hour. This game needs nurturing and practising. It is also a game that will stir the blood of all train enthusiasts. Each particular locomotive is depicted as a colour graphic with all the statistics about it available from the menu system and in the handbook.



There are some pleasant graphics events to note, memorable happenings such as your first train in a station or building a bridge. It is actually worth one train collision just to watch the associated action!

This is a strategy and business game that I cannot recommend highly enough. If you have an ST with a double sided drive you must put this at the top of your shopping list, if you are one of those lucky people who have a hard drive it installs marvellously, no on-disk protection just an ingenious book based system which will make many train spotters into computer fans. My only complaint about this game is that it did not come out sooner in ST format.

- ***SIGHT & SOUND*** *- excellent and atmospheric, the only thing missing is the smell of smoke!*
- ***GAMEPLAY*** *- full of interest, addictive and challenging*
- ***OVERALL*** *- buy it, if necessary get the upgrades to the floppy. You will not regret buying this game*



RAILROAD TYCOON
Microprose
£29.95
Reviewed by Damon Howarth

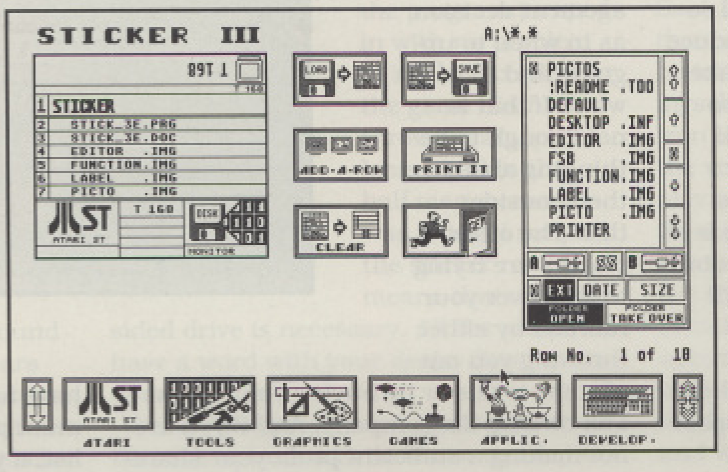
PD WORLD
Paul Rixon's

The ST's highest resolution mode is probably one of its most underrated features. The fact that it requires a dedicated monitor (or switching to a costly multi-sync) is sufficient to dissuade the majority of users from exploring the world of mono. Besides, most hi-res software is of the vastly expensive business-oriented variety - or is it? No doubt you guessed I found a wide variety of programs aimed specifically at mono users by searching no further than the Page 6 public domain library! Colour users don't stop reading yet - there could be a surprise in store later on...

MAGNIFICENT DISK LABELS

If you have a lot of disks you'll know how difficult it is to locate specific programs when you need them. Some sort of ordering system becomes essential and the key to this is effective labelling. This is where **STICKER** comes into its own. It's a brilliant disk labelling program from Germany that's been fully translated into English. The user interface is unusual in that there are no pull-down menus but this doesn't mean it's difficult to use - quite the reverse, in fact. Sticker displays a template on the screen and by pointing at various areas of the label, in conjunction with other action icons, you can add text and graphics as desired. The current disk's directory is shown to the right of the label and you can copy file entries, complete with date or file size, over to text slots on the label itself. You can include a picture to illustrate the nature of the software (there are many to choose from) and add text descriptions in various positions. Sticker handles inverted printing for the fold-over portion of the label and will even print the disk number along the top edge. The end product looks very professional indeed and is just the right size for printing on continuous tractor-feed disk labels (I obtained some large rolls from CLP, Tel. 0258 459544). Existing Sticker users will not want to be without the supplementary disk **STICKER ICONS** which provides dozens of additional pictures to include on the labels.

Another one recommended for printer users is **DELUXE FONTMASTER 2.0**, a text publishing package that's rather



STICKER - surely the best disk labeller of all?

like the brilliant Daisy Dot system for 8-bit users. The disk comprises two main programs, a font editor and text editor, plus demonstration text, fonts and frames (non-textual fonts). The text editor lets you load your own ASCII files from disk and then print them out to an IBM, NEC or Epson compatible printer using any available typefaces. You can modify the text using in-built editing functions and specify various parameters on each line to control the character width, text alignment and font usage. You can even insert control characters to change fonts mid-way through a line. There are dozens of fonts provided but if you want something different it's not a problem - just load up the Font Editor and design your own! To use this you simply click on an existing character and then paint your new deign onto a large grid. There are facilities to adjust the overall character width, shift the character in any direction and also use mirroring effects. It does require some effort but the end result can be quite impressive. Your documents may never look the same again!

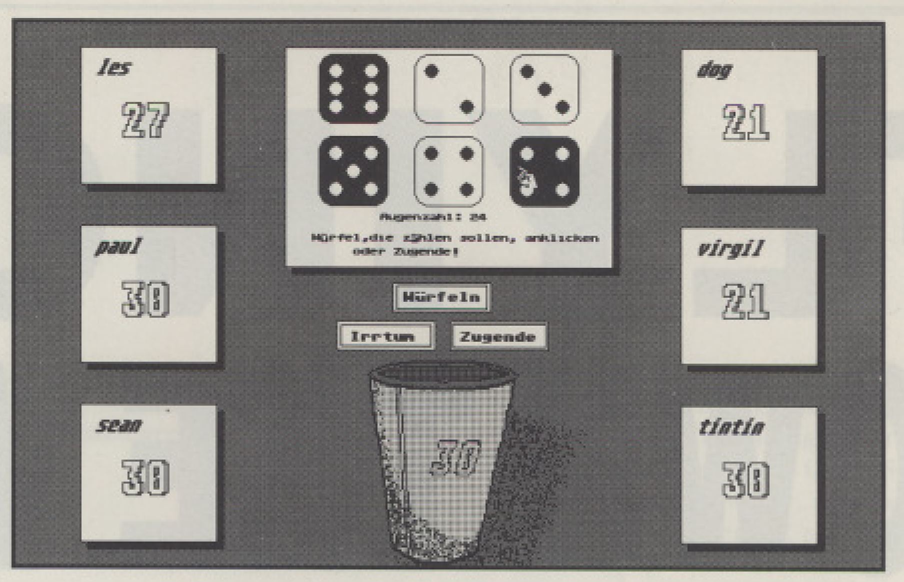
FOR THE ARTIST

For those artistic types who are looking for a decent mono art program, **PUBLIC PAINTER** may be the answer. It provides all the familiar drawing functions plus one or two extras that are rarely seen elsewhere. The documentation starts off with a list of things the software CAN'T do - such as print to non-Epson compatible printers and adjust the spray can attributes - but this part is minute in comparison to the subsequent list of features. You can load picture files in several formats such as Degas or Doodle and convert others including Neochrome and Art Director. You can add text to pictures using any Degas style fonts and these can be printed in any direction. A clever part is the 'bending' function with which you can create some spectacular artwork, having text or sections of the picture 'warped' in different ways. There are twelve bend modes based on mathematical formula, all easy to use but not so easy to explain! Block facilities are comprehensive and include flip, mirror, re-size, print, copy and other effects. Fill mode offers many different background patterns - even Fuji symbol wallpaper! Whether you want to have a quick doodle or a serious artwork session Public Painter is a capable, user-friendly tool that shouldn't be overlooked.

PLAYING AROUND

Of course, mono computing isn't restricted to 'serious' applications. Everyone enjoys entertainment now and again and naturally there's no shortage of mono games in the public domain. **MONO GAMES 6** is a typical compilation of goodies and contains three excellent games on a strategic theme. Alfred's Kistenlager Schiebereien (or AKS for short!)
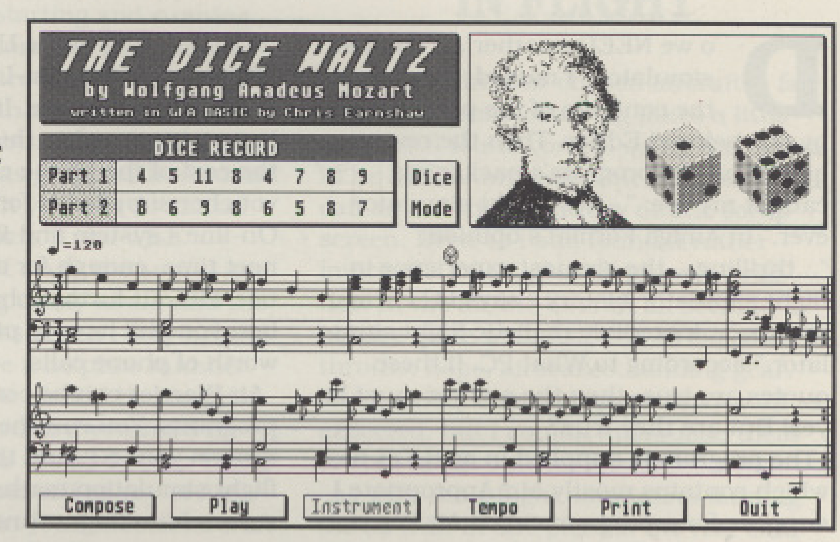
is based on a concept also known as Soko or Sogon (8-bit Atarians were recently treated to the latter). Using the arrow keys you command a worker who is required to shift barrels around a warehouse and place them in the proper locations, within a strict time limit. The barrels must be pushed from behind and cannot be pulled so you have to be careful to avoid getting stuck in a corner. There are dozens of challenging levels but a screen editor is provided so you can build even more! The program is German but English instructions are supplied and it's very easy to play. Dreissig is a German dice game for up to six players. The players takes turns to throw three dice with the intention of getting a score close to the number thirty (that's Dreissig in German!). If the total is short of this magic figure the player loses points but if it's exceeded there's an opportunity to damage the opponents' scores by obtaining the same number as the surplus in a subsequent throw. The game is easier to play than explain, and it's particularly fun with several human participants. Last but not least, Inversi is a version of the classic Othello (also known as Reversi) in which two players place counters on a grid and attempt to convert the majority into their own colour. This game is VERY addictive!



Dreissig from MONO GAMES 6 - dice fun for up to six players

PLAYING MUSIC

Still on a recreational theme but this time of a musical nature, **MOZART'S DICE** is possibly the only ST program that can claim the ability to compose more than 350 million, million different pieces of music! To play them all would take over 500 million years - who knows, by then Atari could be market leaders! Mozart's 'Dice Waltz' was first published in 1792, the year following his death, and is a kind of game played with two dice. Depending on the value thrown a bar of music is selected from a predefined collection and added to the current composition. This is repeated sixteen times to complete the entire piece. Though Mozart wouldn't have dreamed it, this process is an ideal task for the microcomputer. It's primarily intended for use with a MIDI instrument (MIDI definition files for the Casio CPS-101 and Yamaha PSS-480 are supplied but you can create others) though it will also play through the ST's internal sound chip. The ST's high resolution graphics are used to good effect in displaying the bars of music. It sounds pretty good too! Elsewhere on the same disk are other goodies for MIDI users in the form of a demo of the commercial package EZ-Score Plus and also Patterner, a MIDI music experiment kit.



MOZART'S DICE - millions of possibilties, all of them producing sensible tunes!

USE THEM IN COLOUR!

Okay, admission time. I don't have a mono monitor or a multi-sync! All the software reviewed in this article was run using the commercial **MONULATOR** emulation program, obtained from Goodman Enterprises. I hope this illustrates the point that a large proportion of mono PD can be used by owners of colour monitors too. Whilst I'm not suggesting that a hi-res monitor is anything less than essential for serious mono computing, it's worth knowing that many programs - especially applications such as Sticker and Fontmaster - are perfectly useable under mono emulation. While testing a variety of library disks with the Monulator I encountered few compatibility problems. All the programs specifically mentioned above were used without incident.

One of the latest disks to join the Page 6 library (unfortunately too late for review) is titled **MONO EMULATOR & GAMES**. It features a useable demo of a commercial mono emulator and a selection of mono games software. This could be the ideal introduction to mono emulation, why not try it?

No takers for last issue's FREE GIFT yet... Is anyone out there?

HOW TO GET THEM

The disks featured in PD World can be obtained from the PAGE 6 ST library. When referring to a specific disk please use the unique reference code for identification. A printed catalogue describing all the library disks in detail is available from PAGE 6 at a cost of £1.95, refundable against the first few disks ordered. This includes a copy of THE PAGE 6 CATALOG DISK which is otherwise priced at £1. The disks featured this issue are:

ST168 - STICKER
ST196 - PUBLIC PAINTER
ST455 - STICKER ICONS
ST533 - DELUXE FONTMASTER 2.0
ST552 - MONO GAMES 6
ST704 - MOZART'S DICE
ST758 - MONO EMULATOR & GAMES

Prices for standard disks are £2.95 each or £2.50 each for five or more but prices are lower for members of the PAGE 6 ST Club. Write to PAGE 6, P.O. Box 54, Stafford, ST16 1DR or telephone 0785 213928 with credit card orders

FLYING DOWN THE WIRES

Do we NEED another air combat simulator? I mused, as I saw the contents of the parcel sent by our beloved Editor. Then the review quotes on the program's packaging caught my eye: "...best flight simulator ever." in Amiga Format's opinion; "...thrilling ...the greatest experience in flight simulator history." says PC Format; and an "...incredibly realistic flight simulator." according to What PC. If these quotes are true, then the answer must be yes! But are they true?

The program is supplied in a HUGE box, which contains mostly air! Appropriate I suppose for a program called Air Warrior. The box contains a large glossy poster of Spitfires in flight, with a map of the Air Warrior combat area on the reverse; three double sided disks containing the program code plus supplementary graphics and sound data; and two good quality instruction manuals. It also contains two vouchers, more of which anon.

Air Warrior will run on a 512k ST(E), although 1MB speeds up certain graphics operations. You also need a double sided diskette drive and a colour TV or monitor, as the program runs in low or medium resolution colour only. But now for the crunch! Air Warrior also needs a modem capable of operating at 1200 or 2400 baud, as to use it to the full you have to connect your ST to On-line Entertainment's host computer via the phone system.

MODEM VOUCHER

If you don't already have a suitable modem you can use one of the vouchers supplied to buy one at discount from On-line Entertainment, although you'll find cheaper ones yourself if you shop around. Expect to pay at least £70 for one that's suitable for Air Warrior, but remember you can also use it to connect to any of the hundreds of free bulletin boards and commercial online services now operating in the UK.

Please note that On-Line's host system is NOT a free service. It costs £1.76 per hour to use, and to this you must add the cost of the phone call. The second voucher supplied is for free signup to On-line's system and £30's worth of connect time, enough for about 17 hours of use without further charge. But remember, you still have to pay for 17 hours worth of phone calls.

Air Warrior can be considered a pair of programs. You run the "front-end" program on your ST, and this handles all the flight simulation maths, animation and screen handling, sound effects, and user inputs - mouse/keyboard for flight control, and keyboard command text input. It also deals with communication with the "host program" part of the program pair. This handles all the various multi-player interactions available, combat scoring, and game record keeping. Working this way means you can become a player in a huge multi-player game, with up to 40 people taking part simultaneously.

It is possible to use Air Warrior without dialling into the host system, but you'll be totally alone in your simulated world if you do. This is OK for learning to fly the various aircraft represented, but it quickly gets pretty boring after you've done that. The whole point of Air Warrior is to provide interaction with other users, and this of course requires on-line connection. Your simulated world is then shared with all the other users currently logged onto the system, and you can interact with them much as in real life.

FRONT END ONLY

Air Warrior is complex, so your first task is to learn how to operate the ST front-end program. After loading it you are presented with a set up screen, to set the program's communications parameters for establishing contact with the host system. It also handles selection of the program's runtime options, such as use of the "picture cache"; toggling of sound effects; and use of digitised sounds, either via the TV/monitor speaker or routed out through an ST-Replay cartridge. The program doesn't appear to use the STE's audio outputs though.

This screen also has loading and playback facilities for the "film" taken by the gun camera carried by each aircraft. This allows you to re-live your own air battles or even look at film taken by other pilots. Two ready-made films are provided, so you can check out the action you can expect to see without going online. One of the films is complete with on-screen commentary, and takes the form of a gunnery lesson, giving useful hints and tips about dogfighting. The facilities also allow you to do the impossible - move the viewpoint of the camera during playback to one of many EXTERNAL positions, so your own aircraft is included in the view.

The final function of this screen is to enable you to choose your "mode of transport", which may be Fighters, Bombers, Jets, WW1 Planes, and Vehicles. Yes, you can also drive land based vehicles as well as fly aircraft in this simulation! Twenty three different aircraft types are available including such diverse models as Spitfire, B17 Flying Fortress, F86 Sabre, and Sopwith Camel. Each has been carefully modelled so its simulated performance is close to the real thing. The land vehicles - Jeep, Truck, T34 Tank, and "Flakpanzer" - are included to enable you to engage in a limited amount of combat activity on the ground, but we'll cover this when I describe the online scenario.

The basic view from the cockpit of each aircraft looks very similar, having the traditional flight simulator layout of instrument panel in the lower half of the screen, and the view through the canopy above it. The instrument panel is fairly basic, showing the bare minimum of flight instruments. Overall I wasn't very impressed by the graphics.

ST File

CUSTOM GRAPHICS ..

It is possible, however, to improve the look of the cockpit by loading sets of customised graphics of the cockpit interior. Customisation seems to exclude the instruments themselves, so it's really only the canopy and instrument panel styling that changes. A set of graphics can include all possible views from the cockpit, i.e. all around you in 45% increments from the front, plus variations looking upwards, downwards, and leaning left and right. The complete set contains 29 different views, so producing it is not a trivial task.

Individual views may be created using your own favourite paint program such as DEGAS (not provided), then packaged together into one file for loading using the utility program provided. Several samples of customised graphics are provided, and they do make those views from the cockpit much more attractive.

The only problem is, each view is loaded from disk when selected, involving an unacceptable 5-6 second break in the action. This is where the "picture cache" mentioned earlier comes in. Using it, a view only gets loaded from disk the first time it's used, and remains in memory for subsequent use, all but eliminating the annoying loading delay. With 512K of memory you'll only have space to hold one or two views, but one megabyte gives you much greater scope.

...AND SOUNDS

It's also possible to load in customised sets of digitised sounds, covering such things as engines starting and running; guns firing; explosions; tyre skids; and similar. There's a decent set of sounds provided, or you can use the supplied utility to package your own. On-Line's host system also has graphics and sound libraries from which you can download more customised data if you wish.

The manuals don't cover the sound and graphics packaging utility at all, and the README files on disk aren't very helpful either. On-line have a helpline number you can phone, so it should be possible to get more information if you need it.

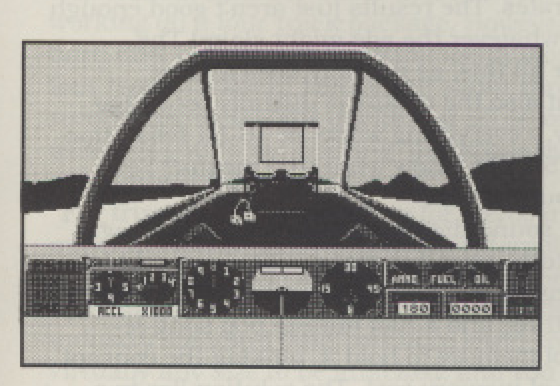
When everything is set up to your liking you can position yourself at any of Air Warrior's airfields in your chosen aircraft to start the business of learning to fly. My initial impression of the view from the cockpit wasn't very favourable. There isn't much to see out there - a lot of blank sky and ground, punctuated by the odd pyramid shaped mountain, occasional lake or river, and airfields complete with odd hangars, supplies dump, and control tower if you're lucky. Once in the air you also get to see a few more structures, including factories, refineries, river bridges, and a tiny "capital city" of each area. However, Air Warrior isn't about nice scenery, so let's not get too hung up about it.

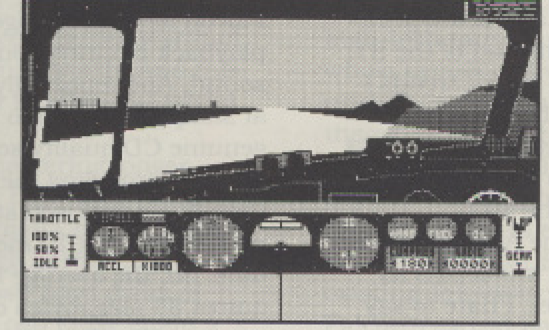
IN FLIGHT

Taking off in your chosen aircraft is fairly easy, but manoeuvring takes a little practice. I found control using the mouse to be a little unpredictable, although you can adjust the sensitivity on the setup screen. Even so I still found it rather imprecise, but it gets easier with practice. In the air the aircraft all seem to behave quite well, reacting as expected to throttle, flaps, airbrakes, landing gear, and primary control inputs. They stall as expected, but I couldn't persuade them to spin at all.

As with most flight simulators landing the aircraft in one piece is the real challenge! Air Warrior seems VERY fussy about how you return to terra firma - anything more than a gentle kiss of tyres on the runway and you're dead! I guarantee you'll bend a lot of aeroplanes before you get the hang of it.

And that's about it really - without going online all you can do is take off, fly around, do a few aerobatics perhaps, and land. When you can do all this reasonably well you can think about dialling up that host computer and trying it online. I hoped I'd be able to do this before the copy deadline for this article, but On-line didn't manage to get me registered on their system in time. Why it should take them over a month to do this beats me. You can actually dial up and register straight away, but you have to pay extra for this privilege! Being a miserly old *** I didn't do this, so you'll have to wait until next issue to hear about the combat scenarios and how I fared when taking part. Wish me luck!





Just a few of the many planes available - F86 Sabre, Spitfire, Mustang and B17 bomber

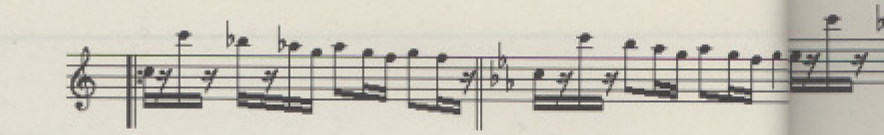
AIR WARRIOR

On-Line Entertainment

Price: £34.95

Reviewed by John S Davison





THE FALCON -

ATARI'S SAVIOUR OR ANOTHER MISSED OPPORTUNITY?

John S Davison's regular guide to making music on your favourite computer

The Atari ST has been the high-tech musician's favourite computer for many years now, thanks to its "power without the price"; to its built-in MIDI ports; and above all else, to the software houses who've produced high quality MIDI application software to exploit its unique features. Software availability is THE key to success for any computer - but what are we seeing now? One by one the software houses, particularly those producing games, are quietly dropping their support for the ST and focusing on other software formats.

More worryingly, the two major players in the ST music software arena, C-Lab and Steinberg, are also diversifying into supporting other machines. C-Lab have recently completely redesigned their fantastic Notator sequencer and score printing package - but for the Apple Mackintosh instead of the ST. An ST version is promised, but in the light of recent trends I wonder if it will ever appear? Similarly, Steinberg have now released their flagship Cubase sequencer package on the IBM PC and Apple Mac. OK, neither company has actually stopped supporting the ST yet, but is the writing on the wall?

These moves are understandable, as both the Apple and IBM machines are rapidly gaining popularity with musicians as their specifications rocket and prices plummet. I hate to say this, but the ST (and even the TT) look decidedly underpowered, underfeatured, and overpriced compared with IBM's latest offerings, and Atari now desperately need a new machine to compete if they're to survive.

There IS a ray of hope for Atari, if they get their act together. In case you hadn't guessed, it takes the form of the Falcon, Atari's latest attempt at fighting back. From its specification you'd think it had been designed purely with the musician in mind, although it should also be great for games and "serious" applications. Let's have a quick look at the features likely to stir the imagination of high-tech musicians - and hopefully the software houses too!

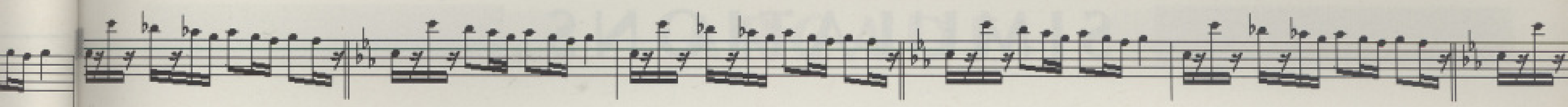
TWO MODELS

Initially, two Falcon models will be offered. The entry model costs £499, and has 1MB memory and a 1.44MB floppy disk drive. The enhanced model at £899 adds a 64MB hard disk and has 4MB memory, but otherwise has the same basic features as the cheaper model. And what features!

Firstly, the Falcon provides a big boost in raw processing power compared with the ST. The Falcon's full name is actually the Falcon030, reflecting the fact that it's designed around the 32-bit 16MHz Motorola 68030 processor chip, like certain midrange Apple Macs. There's also rumour of an even more powerful 68040 version (Falcon040?) to follow, but this may just be the usual Atari marketing smokescreen! As well as opening the door to exciting new applications, this extra power should make existing heavyweight musical tasks such as graphical score editing run much faster, making it easier and more pleasant to perform on a computer screen than it is now.

Circuitry allowing playback of sound samples has been available on various computers for ages now, either built-in or as plug-in accessories. Generally, performance hasn't been very good though, usually because most use 8-bit technology and relatively low sample rates. The results just aren't good enough for professional use - whatever the ads might claim! The Falcon aims to change all this, as not only does it have playback circuitry, but also the means of digitally recording sound. And amazingly, - everything works in 16-bit resolution at sample rates up to 50KHz. Know what that means? Yes, genuine CD quality sound!

Simply providing the sound digitising circuitry isn't enough though, as digitised stereo sound at this quality level gobbles up a staggering 10 megabytes of storage per minute of playing time. So, the average three and a half minute pop song requires 35 megabytes of memory to hold it, making the concept a non-starter because of memory cost. The solution lies in a development of technology already used on the ST - the Direct Memory Access (DMA) facility.



DIRECT TO DISK

Originally DMA was designed to enable data to be transferred between the ST's memory and a hard disk with minimal CPU involvement. The Falcon can use it to transfer digitised sound data directly between hard disk and the sound circuitry - which means you can plug a hi-fi stereo audio sound source into the Falcon and record the digitised sound directly onto a hard disk with little CPU overhead. Similarly on playback digitised sound data can be read from hard disk and played back at hi-fi quality via the Falcon's stereo audio output. There's no need to hold the complete recording in memory to do this - the software just has to ensure the sound circuitry is continuously fed with data at the right rate, using memory as a buffer.

Alone this isn't of much value, but with appropriate software the picture changes considerably. A prime application area for Falcon is digital sound editing. Imagine being able to accurately cut up a digital recording into separate pieces, then sequence the pieces together in any order so they'll play back seamlessly. Imagine being able to cut out a singer's wrong notes, rerecord the right ones, and splice them back into the vocal track without audible glitches. Or to selectively remove odd clicks and other extraneous noises. Or repeat verses or choruses without the hassle of rerecording them. Or smoothly fade out a song at its conclusion. And all done non-destructively onscreen, without the need to mess around with magnetic recording tape! The possibilities are endless - with appropriate software.

There's nothing new in this, even - it's been possible for some time using add-on hardware, but again this tends to be VERY expensive. The breakthrough is that it's standard on the Falcon, for a fraction of the price! OK, you still need to buy hard disk capacity and appropriate "direct to disk" software, but suddenly the whole ball game has become much less expensive. Potentially, professional quality digital recording, editing, and replay facilities could soon be affordable by almost anyone. It could cause another major revolution in music production, probably as big as that caused by the ST with MIDI. And don't forget - the Falcon still has MIDI, so we could soon see software combining MIDI sequencing and direct to disk recording facilities.

EIGHT CHANNELS?

Although the Falcon is said to be capable of handling eight sound channels it's not clear yet whether it's powerful enough to act as a proper CD quality eight track digital recorder. Two track (stereo) operation has already been demonstrated, which means the Falcon could at least be used for digitally editing stereo master recordings prior to transfer to master tape for duplication. Rumour has it that one software house is already working on a four track package. However, the built-in 64MB hard disk is too small for doing much more than this - using four tracks it would hold about about three minutes worth of recordings; with eight tracks just 90 seconds worth! And this assumes you're not wasting disk space by anything so trivial as storing software on it!

For true multi-track work or for stereo mastering longer material Falcon needs additional external hard disk capacity. It handles these via its built-in SCSI-2 (Small Computer Systems Interface, Mk 2) port. This allows high performance industry standard (and therefore lower cost) hard disks of virtually any size to be attached, and you can daisy chain a number of them together to add capacity as you need it, assuming that the cost of extra drives can be justified.

VGA DISPLAYS

If the SCSI interface was a surprise, then the video side of things is a bigger one. Not only does the Falcon's monitor port let you attach existing ST colour and monochrome monitors, but also IBM PC style VGA (Video Graphics Array) monitors. This is great news, as there's a terrific range of high quality VGA monitors now available at prices starting at well under £200. The Falcon's improved colour and resolution should make such tasks as score editing and digital waveform editing easier on the eye than now, better even than the ST's excellent hi-res mono monitor.

Another Falcon unique is its built-in Motorola DSP (Digital Signal Processing) chip. This allows digital signals to be processed in real-time to add reverb, delay, chorus, flanging, or whatever other effects algorithms the software authors are able to come up with. So, as well as becoming a master or multi-track recorder the Falcon could also act as its own effects unit!

Falcon will also eventually be getting a new operating system known as Multi-TOS. The bad news is that it won't be available initially, so Falcon will arrive with TOS 4.0 instead - an enhanced version of the operating system currently fitted to Mega STE and TT machines. Multi-TOS will probably be made available later as a disk based upgrade. I just hope it isn't another example of Atari vapourware!

Multi-TOS is billed as a true pre-emptive multi-tasking operating system, under which several programs can be loaded and run simultaneously. It's not the simple "program switcher" type of utility now available on the ST, which allows you to load several programs into memory at once and manually switch between them as required. With these systems only ONE program is actually active at any one time, but under Multi-TOS it should be possible to have several programs active simultaneously. For instance, you could be recording a synthesiser track from your MIDI keyboard using your favourite sequencer, synchronised with a completely separate program which is playing back an acoustic recording of vocals and guitars from the hard disk.

COMPATIBILITY

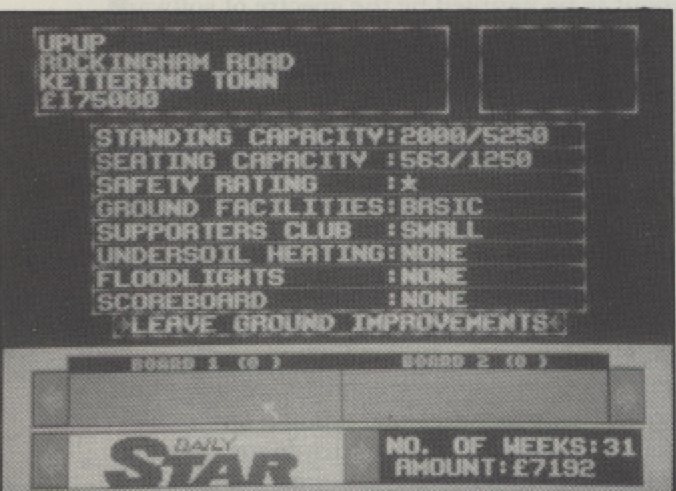
There's one small snag though. As with the STE and TT I suspect we're about to be haunted by the spectre of software incompatibility once more! For programs to run successfully together under Multi-TOS they must be written in compliance with the official Atari software interfaces. Again, as on the STE and TT, for programs to run AT ALL on the Falcon they must not break those interface rules. Programmers, particularly those producing games, tend to ignore rules in the quest for maximum performance, so I'll be surprised if compatibility isn't an issue! It's already known that the current versions of C-Lab's Notator and Creator sequencer packages won't run on the Falcon. And C-Lab will NOT be fixing the problem!!!

The music world is watching the Falcon very carefully. For the high-tech musician its potential is tremendous, opening up a whole smash of creative opportunities at a much lower entry price than previously possible. But, to return to my opening theme, realising that potential needs the support of the major software houses. This means they must release software which exploits Falcon's unique features as soon as the machines go on sale. AND - to encourage existing ST users to upgrade to Falcon - Atari MUST work with the software houses to ensure existing software can be run on the new machines. With Falcon's arrival imminent that work should already be complete. Do you think it is? I suspect we all know the answer to that, don't we? Please, Atari, prove us wrong!

PREMIER MANAGER

Well, a football game that is the successor to a rather successful format, that's novel Brian. Gremlin have launched this updated version of the old Football Manager with a lot of style.

What actually comes in this football frenzy? Well the start up is quite reasonable solid ST sound, a little uninspired but none the less solid, and then a very difficult piece of copy protection. The game comes with a wheel that has various coloured football strips on it. Unfortunately the printing of the colours is somewhat off shade and this means that the guessing what bit goes where becomes harder and even with the wheel there is a tendency to fail the test. Still when the protection is appeased the game looks quite entertaining. There is an option for up to four players at a time and the chance to name and colour your own team. Sadly these teams at the outset may only come from the Vauxhall league. As the seasons progress and as you are recognised as a more capable manager other teams may well ask you to take part as their man in charge. Users of 512k machines should be aware there are quite a few options in the game that are only accessible to the 1040 version and this limitation rules the manager out from playing in Europe generally and some of the other cups are also lost to you. That minor problem aside the game plays equally well on all machines.



Title:	**PREMIER MANAGER**
Publisher:	**Gremlin**
Price:	**£25.99**
Reviewer:	**Damon Howarth**

Once the game boots up there is a good menu screen offering a wide selection of options to play. There is very little help as to where to start and you have to learn the game from bottom up. The instruction book offers all the help that is needed but does not tell you what to do with the various bits, for example when and why do you upgrade the seating in the ground? The answer of course comes with practice and budget.

At this stage I have not begun to explain the team and match day, because it really is the last thing on the managers mind at this point. Once the state of repair of the ground is decided upon then there is the job of obtaining matchday sponsors to fill up the boards at the side of the pitch. Yes the financial side of this management game is very important. Now the next thing to do is ring the job centre as it seems that there may be YTS coaching staff for hire and this helps your players come on in leaps and bounds. Now, at last, it is time to look at the team.

The players are rated like AA Hotels with a five star guide but this is further divided into a star rating within each standard of player. For instance is a five star fair player better than a one star good player? What effectively appears is a twenty three point scale allowing a player to be adjudged the ultimate at whatever particular position he plays. Training will allow a player to progress so far. I never managed to cross a standard barrier but did manage to improve star ratings on a player. The head coach will recommend training schedules to you but in the final analysis it is once more the manager's job to take that final decision. Of course while this goes on you can detail your scout to look for particular types of players, this means that every so often you will have the option of bidding for new players to bolster weak spots in the Egon Ronay guide to good soccer players. Your scout will recommend bidding prices but even then the player may refuse your offer and go elsewhere. At this point it is fair to point out that either the computer or other players may well bid against you and thus your record or offer will be taken into consideration. Don't expect premier division stars to play in the G. M. Vauxhall league for instance.

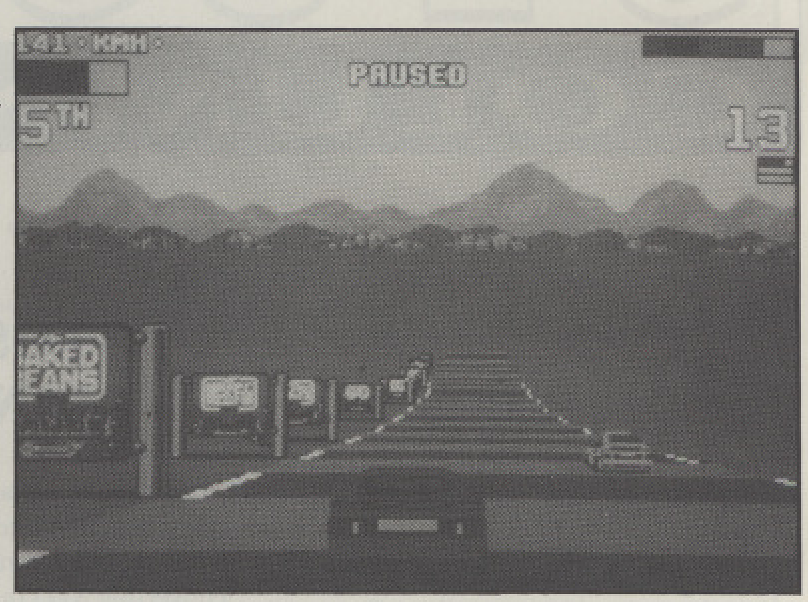


“ needs brains to play! ”

Finally comes the match itself. Select a team and subs and choose one of four tactics and setups. The play rolls from end to end with textual commentary. There is an option to retrench at half time and all the stats are available at full time. These include tackles attempted and shots made. The game does in fact rely on the management input rather than playing. I liked this game, it needed brains to play!

- **SIGHT & SOUND** - *not bad, interesting windowing effects, some spot sounds a little tinny*
- **GAMEPLAY** - *takes some getting into, but once the interface is mastered it is okay*
- **OVERALL** - *a good management simulation be prepared to burn midnight oil with this*

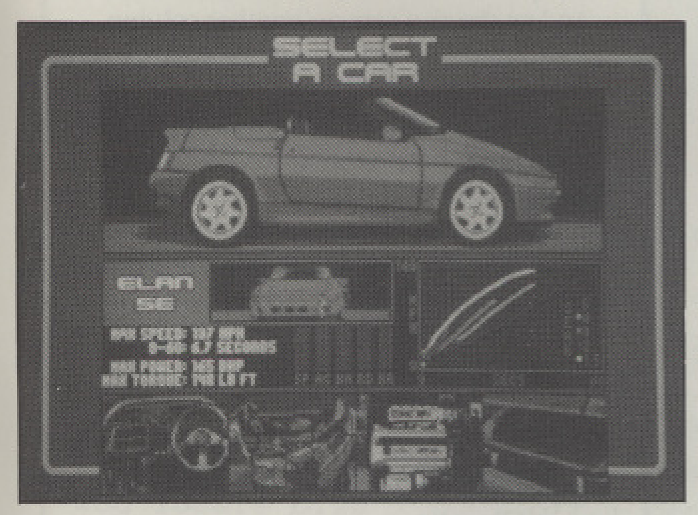
LOTUS III



Lotus III is the sequel to Lotus Esprit and Lotus II, indeed I sometimes wonder whether these sequels will outlast Rocky. Maybe they will just amalgamate them all Rocky meets Lotus XIV or something. Sometimes there really can be too much of a good thing and I felt this package was beginning to look for new ideas in an old format.

The packaging is staid and calm, promising little but the new track layout system, RECS, of which I shall write later. The opening sequence is strong, good beat music and some attractive car pictures, despite the fact it is all in magnificent mono. I actually started to think the ST had hung when I first booted this. The copy protection is of the standard page, paragraph, line, word variety but with one interesting and educational difference. Despite the fact that the program asks which language you wish to drive in the protection still picks parts of the foreign manuals to ask about. Although this may not seem a problem I would like to take a straw poll on whether l'autrisation is one or two words. This Euro fracas aside the protection was fine.

Once into the program there is an option to choose the car for the rally. No proper stats are shown although there is the option to try out the never to be built Lotus special car. By using the CD player logo many preferences may then be set, this includes track selection which promises to be the most interesting part of the game. There is also the two player option mode here, but it is wise to agree on the music track you wish since both players cannot opt for different sounds at the same time. Once the track is entered and the race is off, the standard smooth scrolling road appears. There seems to be no chance of crashing out of the race it merely slows you down a little. Somehow the challenge of maintaining a straight course on banded tracks loses its appeal after five or ten similar minutes. I felt that the idea of just offering full throttle all the way was uninspired, there was not even any tail flick available. For a trial I even drove into a solid bridge pillar and bounced off with little loss in speed. These courses did not feel challenging. The scrolling and graphics were smooth and colourful but not exciting.



Title:	**LOTUS III**
Publisher:	**Gremlin**
Price:	**£25.99**
Reviewer:	**Damon Howarth**

I then tried RECS, the multi faceted course designer. It works on a simple menu system allowing you to select the percentage of any particular feature and then adding a letter to the code box. If this code is maintained and saved to paper it may be typed into any other Lotus III game and the course will be duplicated. This, according to Gremlin, will stop the need to have disks passed between course designers and allow for easy phone transfers. Sadly these courses, although pretty and smooth, still do not offer a great enhancement to game play.

Sadly I found that this game, despite an awful lot of menu camouflage, really failed to live up to its hype. The plot, like some Rocky films, is getting a little tired the star a little worn and the introduction of RECS does little to save the game from an ignominious anonymity. It seems to me that the greatest achievement in this game is the ability to change around title tracks and the easy escape route presented by the menu. I tried hard to like the game but found it difficult to find any really positive points about it. The best and most enthusiastic comment I could manage was it's alright for ten minutes on a soggy winters day.

> *" getting a little tired "*

Perhaps Gremlin should ask Sean Connery to appear in the next edition and see if he can stop this sequelisation going entirely downhill. Sorry Gremlin I did not like this.

- ***SIGHT & SOUND*** - *smooth scrolling and pretty colours, some good fx and sounds*
- ***GAMEPLAY*** - *repetitive, and not overly inspiring*
- ***OVERALL*** - *perhaps this would be improved by renaming it Reliant Robin simulation, not my cup of tea at all*

THE STOS COLUMN

Welcome to another STOS Column (the 22nd if you're keeping count!), and as usual it is packed full of programs! This issue there is not one, not three, but two type in listings for you to savour! One of them is a utility and the other a game, which gives a nice balance to the column (it also means that there should be something for everyone!). Both programs were written by a weirdo who lives somewhere down South, and who is absolutely no relation to myself. Anyway, onto the programs.

STOS DISK MANAGER

This program is a rather handy disk manager for you to use from within STOS. It has 8 functions which include converting NEO to PI1 files, delete file, create folder and display free disk space. It is very easy to use. After typing it in, save it to disk for future use (it is preferable to save it as an .ACB file so that you can reload it as a STOS accessory). When using the program, use the up/down arrow keys and space to select an option and then follow the on screen instructions. You should find that using this accessory saves quite a lot of time when manipulating files.

```
10 cls: key off: curs off: scroll off: colour 1,$0: colour 0,$777: MARKER=0:
HIT=0: OLDMARKER=0: print "MAKE FOLDER": locate 0,2: print "DISK SPACE": locate
0,4: print "DISK DIRECTORY": locate 0,6: print "DELETE FILE": locate 0,8: print
"DEGAS TO NEO": locate 0,10: print "NEO TO DEGAS": locate 0,12: print "RENAME
FILE": locate 0,14: print "DELETE FOLDER": locate 0,16: print "EXIT": locate
0,22: centre "STOS DISK MANAGER (V 1.0)": locate 20,0: print "<<<": on error
goto 10
20 hide on: repeat: K$=inkey$: SC=scancode: if SC<>0 or K$<>"" then goto 30 else
until true=false
30 if SC=72 and MARKER>0 then MARKER=MARKER-2: goto 40: else if SC=80 and
MARKER<16 then MARKER=MARKER+2: goto 40: else if K$=" " then HIT=1: goto 40 else
goto 20
40 locate 20,MARKER: print "<<<": locate 20,OLDMARKER: print "   ":
OLDMARKER=MARKER: if HIT=1 then goto 50 else goto 20
50 if MARKER=0 then MESS$="Make a folder": A$="*.*": gosub 90: mk dir F$: HIT=0:
locate 20,MARKER: print "<<<": goto 20 else if MARKER=2 then locate 0,24: centre
"DISK SPACE FREE ="+str$(dfree): HIT=0: locate 20,MARKER: print "<<<": goto 20
else if MARKER=4 then cls: dir: locate 0,24: centre "PRESS A KEY": wait key:
goto 10 else if MARKER=6 then MESS$="Delete file": M2$="*.*": gosub 90: gosub
100: kill F$: HIT=0: locate 20,MARKER: print "<<<": goto 20
60 if MARKER=12 then MESS$="Rename file": M2$="*.*": gosub 90: G$=F$:
MESS$="Rename file "+G$+" to ?": gosub 90: rename G$ to F$: HIT=0: locate
20,MARKER: print "<<<": goto 20 else if MARKER=14 then MESS$="Delete folder":
M2$="*.*": gosub 90: gosub 100: rm dir F$: HIT=0: locate 20,MARKER: print "<<<":
goto 20
70 if MARKER=8 then MESS$="Change PI? file to NEO": M2$="*.PI?": gosub 90:
reserve as screen 5: load F$,5: kill F$: MESS$="Save "+F$+" out as NEO file":
M2$="*.NEO": gosub 90: save F$: HIT=0: locate 20,MARKER: print "<<<": erase 5:
goto 20
80 if MARKER=10 then MESS$="Change NEO file to PI?": M2$="*.NEO": gosub 90:
reserve as screen 5: load F$,5: kill F$: MESS$="Save "+F$+" out as PI? file":
M2$="*.PI?": gosub 90: save F$: HIT=0: locate 20,MARKER: print "<<<": erase 5:
goto 20 else if MARKER=16 then gosub 100: default: end
90 show on: F$=file select$(M2$,MESS$,4): if F$="" then pop: HIT=0: locate
20,MARKER: print "<<<": goto 20 else return
100 locate 0,23: centre "Are you sure ? (Y/N)": repeat: K$=inkey$: until K$<>"":
if upper$(K$)="Y" then locate 0,23: print space$(39): return else pop: locate
20,MARKER: print "<<<": HIT=0: locate 0,23: print space$(39): goto 30
```

Listing 1 - a Disk Manager in STOS

SECRET CODE

This is based on an old ZX-81 (get out the history books!) game called Secret Code (surprise, surprise!). You all know how to play Mastermind, right? Good. Secret Code is very similar to Mastermind, but instead of guessing a four colour sequence you have to guess a four number sequence. If one of the numbers you enter is in the computers four number sequence, but you enter it in the wrong place the computer will display a "*". If one of the numbers you enter is in the computers four number sequence and you enter it in the right place the computer will display a "#". You have ten turns to guess the numbers. Go to it!

TA-TA

And so the sun sets on another column. Don't forget, if you have any good (short) programs lying around, dust them off and send them in. I'll always be happy to receive any contributions to the column. Your program could find its way into these hallowed pages! You can contact me at the following address. Ta-Ta for now!

Dion Guy,
STOS Column,
11 Shore Crescent,
Bishops Waltham,
Hants,
SO3 1DZ

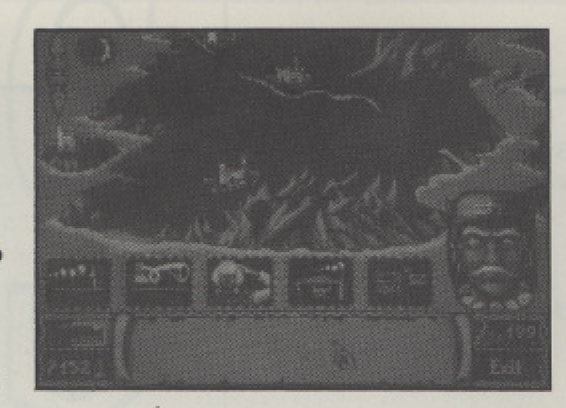
Opposite - can you guess the Secret Code?

```
10 rem SECRET CODE - By Dion Guy
20 rem *************************
30 rem
40 dim G(4),CODE(4)
50 cls : key off : hide : curs on
60 for I=1 to 4
70 CODE(I)=rnd(5)
80 next I
90 home : inverse on :  : centre "SECRET CODE" : inverse off : print
100 locate 0,2 : centre "#=Number there and in right place"
110 locate 0,3 : centre "*=Number there and in wrong place"
120 draw 0,36 to 319,36
130 locate 0,5 : centre "You have to guess a four digit number." : print : print

140 centre "Each digit must be between 0 and 5." : print : print
150 centre "You have 10 chances."
160 draw 0,84 to 319,84
170 draw 0,172 to 319,172
180 print
190 for G=1 to 10
200 B1=0 : WH=0
210 locate 6,G+10
220 print "Type guess";G;space$(16) : locate 21,G+10 : input ":";GUESS$
230 if len(GUESS$)<>4 then print : centre "Enter 4 digits!" : curs off : wait 60
: curs on : locate 0,ycurs : print space$(39) : goto 210
240 for J=1 to 4 : G(J)=asc(mid$(GUESS$,J,1))-48
250 if G(J)<0 or G(J)>5 then print : centre "0 to 5 only!" : curs off : wait 60
: curs on : locate 0,ycurs : print space$(39) : goto 210
260 next J
270 for K=1 to 4 : if G(K)=CODE(K) then B1=B1+1
280 if B1=4 then locate 2,22 : centre "Well done - you've done it!" : goto 460
290 next K
300 for W=1 to 4
310 for X=1 to 4
320 if CODE(W)=G(X) then WH=WH+1 : G(X)=6 : goto 340
330 next X
340 next W
350 WH=WH-B1
360 locate 30,G+10
370 Z=0
380 if B1<1 then 400
390 for C=1 to B1 : print "#"; : inc Z : next C
400 if WH<1 then 420
410 for C2=1 to WH : print "*"; : inc Z : next C2
420 if Z<4 then print "-"; : inc Z : goto 420
430 next G
440 for A=1 to 4 : ANSWER$=ANSWER$+str$(CODE(A)) : next A : ANSWER$=ANSWER$-" "
450 locate 0,22 : centre "Too Bad! The answer is "+ANSWER$
460 locate 0,24 : curs off : centre "Do you want to play again ? (Y/N)"
470 A$=inkey$ : if upper$(A$)="Y" then goto 50 else if upper$(A$)="N" then goto
490
480 goto 470
490 default : end
```

ST File

STORM MASTER



A fantasy strategic management game. This is a sort of cross between John Carter of Mars and Populous. The opening scenes are most effective showing off all the dramatic tension that the Silmarils team have become famous for. Some atmospheric sound tracking has the player ready for a game of mammoth proportions. The first screen, which offers a click and try menu system, promises much but then the game fails to impress as much as it might.

The object is to create a country that can sustain both itself and your projected armies. It would also seem necessary to control the winds somewhat through the national religion which also takes time and money and an eye for the season of the six month year. The secret of this game seems to be in balancing the budget to keep the seven ministers of your cabinet happy- Book balancing is not all that needs to be done however as the enemy are sending fleets after you despite the fact you only recently completed profitable trading two screens ago.

To defend and attack takes flying ships and thus you access another menu and lose more money designing the right type of ship for the job and then appointing the correct crew. All these options come with excellent graphic backdrops but once this is taken account of there is very little actual game. The basic premise is Kingdom and the player involvement drops rapidly after the first few faltering steps. Once the interface is sorted out the actions become reactive rather the planned and winning becomes irrelevant in a mad scurry to entertain your advisors.

I find it very hard to criticise this game further. The mechanics are fine, the sound is good and the overall cosmetic effect is of a high standard. Unfortunately there is not the depth of gameplay or even the involvement of characterisation to merit much more comment. I might be becoming cynical in the face of commercial campaigns but this game does not offer a proper challenge. This reminded me of early ST offerings from the days when graphics were all and plot was an aside. It is very pretty but with little true substance.

FACTS

Title:	**STORM MASTER**
Publisher:	**Silmarils**
Price:	**£25.99**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Very good, colours are strong FX and music superb

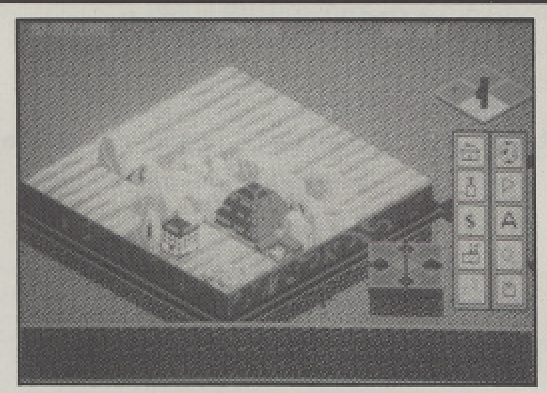
GAMEPLAY

Lacking in originality and any long term desire to play further

VERDICT

Over dressed, over hyped and over here, maybe this is France's revenge for Going For Gold!

UTOPIA
THE NEW WORLDS



FACTS

Title:	**UTOPIA, THE NEW WORLDS**
Publisher:	**Gremlin**
Price:	**£19.95**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

These are of the same quality as the parent game and are quite suitable

GAMEPLAY

At least as good if not better than the original, some scrolling is a little smoother

VERDICT

Worth getting if you are a Utopia fan

This piece of software is an add on to Utopia which received a review several months ago. In essence Utopia is a Populous style of game in which the player creates and terraforms different planets to achieve a balance of resources and defence initiatives. Starting from virgin ground there needs to be power sources and living quarters established. There are enemies to defeat and wars to fight which all needs to be balanced with a growth rate in numbers and technological ability. Anyway this is not the time or place to re-review Utopia.

These New Worlds are the products of one spare data disk and thus need the original game to play. They provide ten new and ostensibly different backgrounds to play out your tactics of world generation and domination. Graphically they are of the same high quality as the originals and the command interface is also the same. The new problems stem from differing land mass styles and from the new intelligences that the player has to encounter. I believe these have a tougher outlook and manage a meaner game.

The main work screens still look like Populous and the placement of icons is also the same, indeed having spoken with old Utopia fans I am informed that little of the overall structure has in fact changed. It was remarked on that the world now looked more like an ice field rather than a desert and that some of the tried and tested tactics seemed to fail a little, but apart from that there was little else of note. Even your board of lieutenants are the same. This too seems to suffer from sequelitus although in this form of game that is not altogether a bad thing.

The maintenance of the familiar allows the player to continue playing without distractions and therefore allows more concentration on the important environmental and military factors that are the essence of the game. As a data disk with new challenges this succeeds very well, it has even moved me to try the whole game myself. It offers more control than Populous and some better opponents. If you have Utopia this could well be a useful addition.

WHERE CAN I FIND ....

The Atari 8-bit computers are, without question, the finest home computers ever designed and can still hold their own against any home computer. More powerful than any 8-bit and much easier to access than any 16-bit, it is a great pity that software and hardware support is dwindling. You can still find support for your machine, though, and this directory should get you on the right track. It is by no means comprehensive and we would be happy to receive details of any other companies, anywhere in the world that still support Atari.

We cannot guarantee what response you might get if you write to any of these companies, but give it a try, they need your support as much as you need theirs. Stick a couple of International reply coupons in an envelope and, if you don't get a reply, the most you lose is a few bob. But if you do get a response, it could open up a whole new world and add years to the useful life of your Atari. Don't forget to keep us informed if you find good support for your Atari Cassic.

Software Infinity
642 East Waring Avenue
State College, PA 16801
Good PD selection. Have just begun marketing commercial games from overseas

DataQue Software
PO Box 134
Ontario, OH 44862
Turbo-816 16-bit upgrade board, TransKey hardware for using IBM keyboards on the 8-bit, and other hardware

B&C ComputerVisions
2730 Scott Boulevard
Santa Clara, CA 95050
Tel. (408) 986 9960
Huge selection of software and hardware items. Also some new commercial games, unavailable elsewhere

Sagamore Software
2104 Arapahoe Dr
Lafayette, IN 47905
Good PD/shareware selection with extensive documentation

Change In Heat
12 Bella Vista Place
Iowa City, Iowa 52245
Independent programmer has produced 2 excellent commercial quality games for the 8-bit

Bresnik Software
555 Ware Street
Mansfield, MA 02048
Another independent, producing good educational software

UltraBasic
10 East 10th Street
Bloomsburg, PA 17815
8-bit speciality software

NERDS Software
18 Wendy Drive
Farmingville, NY 11738
Printshop related software

IB Computers
9244 S.W. Beaverton-Hills Hwy
Valley Plaza Shopping Center
Beaverton, Oregon 97005
(503)297-8425

BellCom
PO Box 1043
Peterborough, Ontario,
Canada K9J7A5
The largest PD/shareware selection

Compsult
PO Box 5160
San Luis Obispo, CA
93403-5160
Closeout items galore

No Frills Software
800 East 23rd Street
Kearney, NE 68847
Closeouts & Printshop graphics

Miles Better Software
219/221 Cannock Road,
Chadsmoor
Cannock, Staffordshire
WS11 2DD
England
Surely known to everybody and, apparently highly regarded in the USA

Electronic Clinic
4916 Del Ray Ave
Bethesda, MD 20814
Refurbished equipment

Kake Software
9 Smith Ct.
Vincentown, NJ 08088
Assorted theme disks

Bacmun Software
1671 East 16th Street,
Suite 629
Brooklyn, NY 11229
PD theme disks

Alpha Systems
1012 Skyland Drive
Macedonia, OH 44056
Utility software & hardware

American Technavision
15338 Inverness Street
San Leandro, CA 94579
(510) 352 5639
Large selection of commercial software at closeout prices, and hardware replacement parts

Best Electronics
2021 The Alameda, Suite 290
San Jose, CA 95126
(408) 243-6950
Known as *the* Atari hardware store. If they don't have the part you need, nobody does

BRE Software
352 West Bedford Ave,
Suite 104
Fresno, CA 93711
PD/Shareware

C&T ComputerActive
PO Box 893
Clinton, OK 73601

MWPDS
890 North Huntington St.
Medina OH 44256

Phantoms Atari 8-bit
Box 331 Levisa Road
MouthCard, KY 41548

Vulcan Software
PO Box 692
Manassas VA 22111-0692

Newell Industries
P.O. Box 253
Wylit, TX 75098
Tel. (214) 442 6612

Innovative Concepts
31172 Shawn Drive
Warren, MI 48093
(313) 293-0730
Accessories, hardware, PD software

CSS
PO Box 17660
Rochester NY 14617
(716) 429 5639
Speciality hardware items, 8-bit repair service

San Jose Computers
640 Blossom Hill Road
San Jose, CA 95123
(408) 995 5080
New and reconditioned hardware and software

Entertainment Excellence
1805 Princeton Place
Merrick, NY 11566
Discontinued 8-bit software

East Hartford Computer
202 Robert Street
East Hartford, CT 06108
Discontinued software for all computers

Aerion Software
PO Box 1222
Riverdale Station, NY, NY
10471-1222
Markets a new 8-bit commercial game

Toad Computers
556 Baltimore Annapolis Blvd
Severna Park, Maryland
21146
(301) 544-6943
Now offers a selection of software and reconditioned hardware

Stourbridge User Group
99 Bredon Road
Stourbridge
West Midlands DY8 4LA
England
(0384) 379575
Large PD/Shareware library

Gralin International
11 Shillito Road, Poole
Dorset, BH12 2BN
Hardware and software, including ICD products

Micro Discount (Derek Fern)
265 Chester Road
Streetly, West Midlands
(021) 353 5730
Large selection of commercial software, also hardware and replacement parts

Tiger Developments
26 Menziers Avenue
Walmer, Deal
Kent
CT14 7QZ
Commercial 8-bit software

Next, is a list of magazines still supporting the 8-bit Atari.

Current Notes
122 North Johnson Road
Sterling, VA 22170
A truly excellent Atari-oriented magazine, supporting both 8-bit and ST

Atari Interface
3487 Braeburn Circle
Ann Arbor, MI 48108
(313) 973-8825
A magazine supporting both 8-bit and ST, with input from Atari User Groups in the US, Canada and the UK. They also produce a monthly Atari 8-bit disk

New Atari User (PAGE 6)
P.O. Box 54
Stafford, ST16 1DR
England
0785 213928
A professionally produced magazine supporting both 8-bit and ST, also large PD library for both machines and commercial software

EXCEL (Robert Stuart)
21 Stronsay Way
Broomlands
Irvine, Strathclyde
KA11 1HZ
Scotland
Disk based magazine and commercial software

This list was originally published by the US disk magazine AIM in July 1991 and updated by Stourbridge User Group whose address you will find included above. Many thanks to them and to all who are still supporting the 8-bit. Long may it continue!
Please keep us informed if you know of any amendments.